

FIG. 4

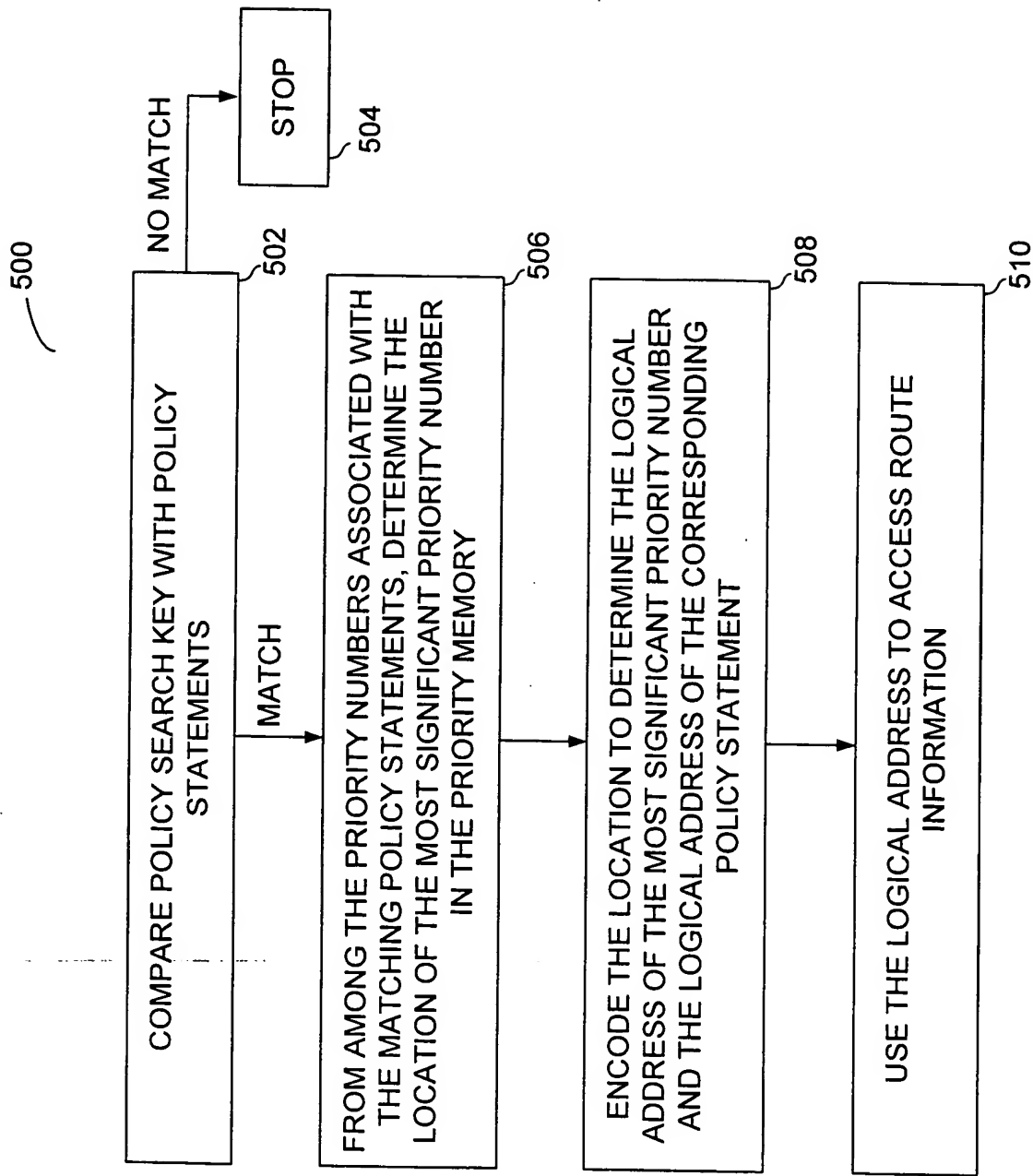


FIG. 5

400

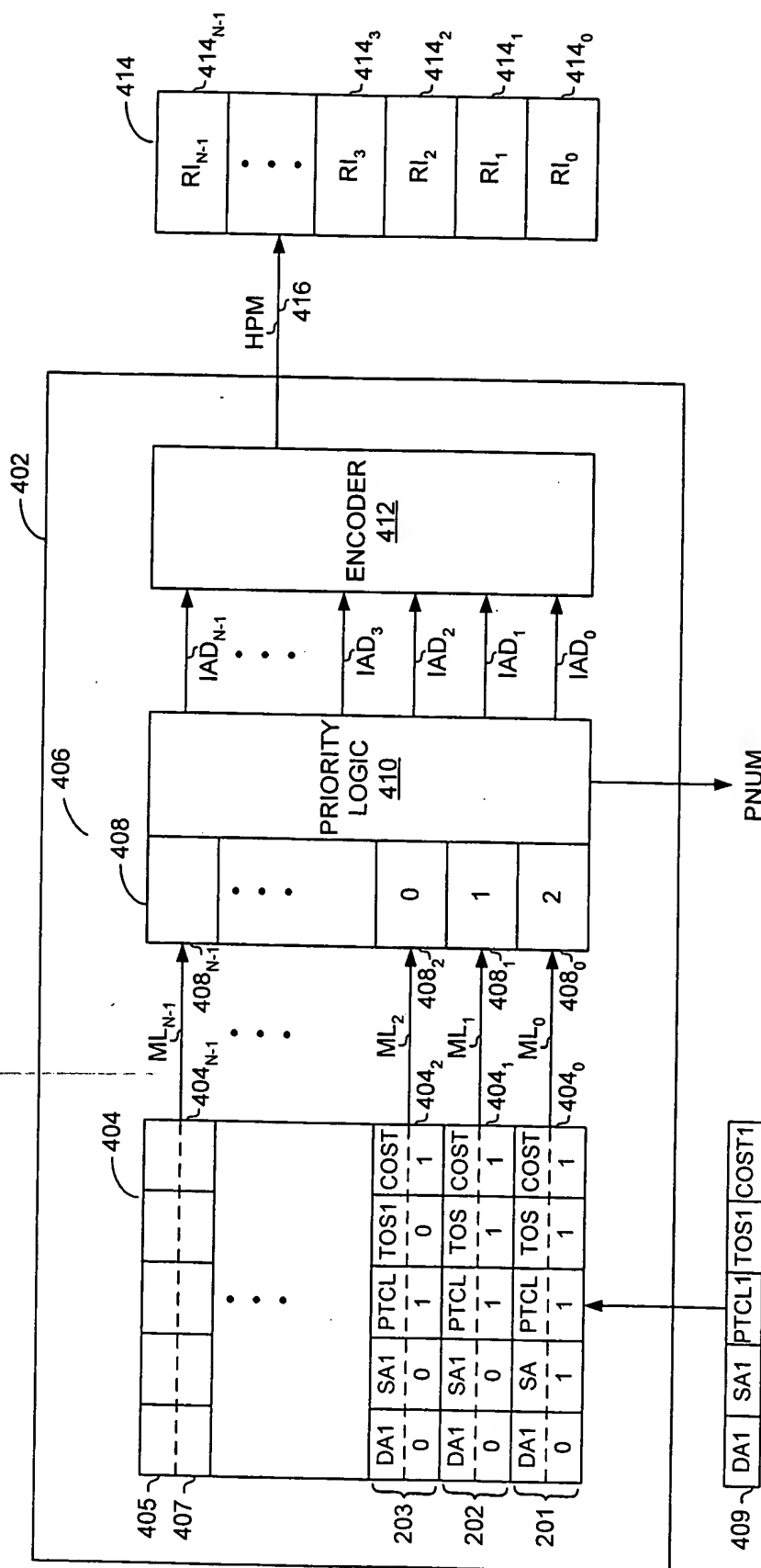
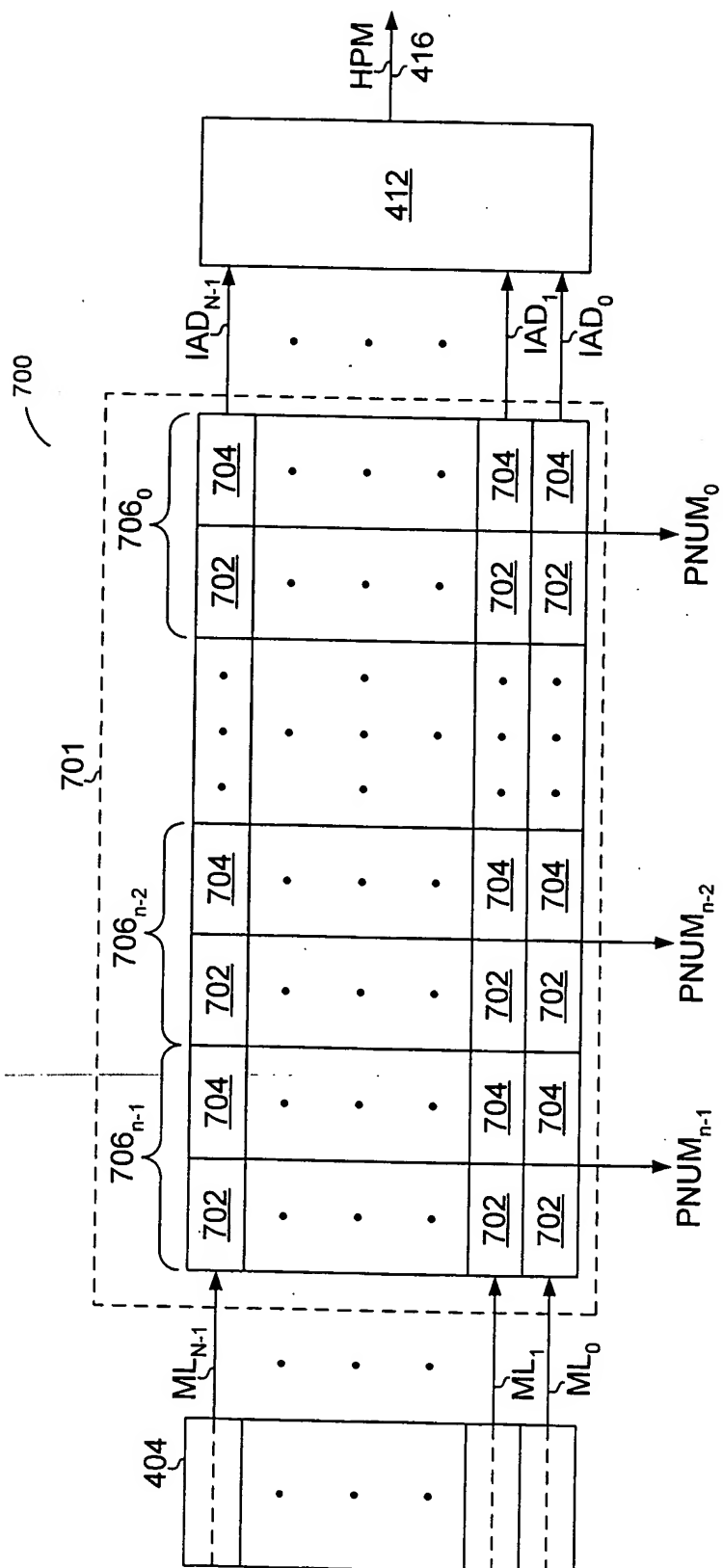


FIG. 6



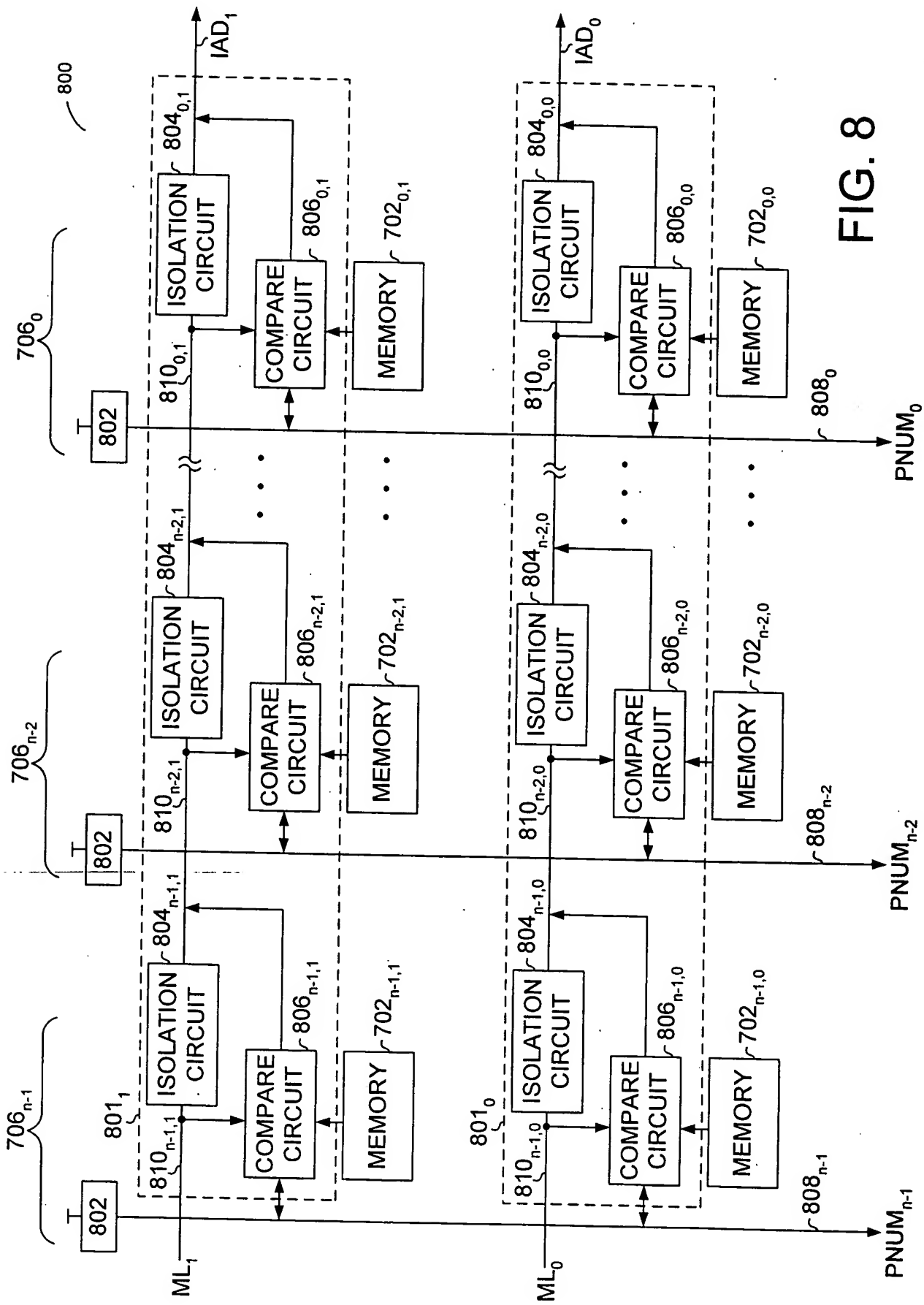
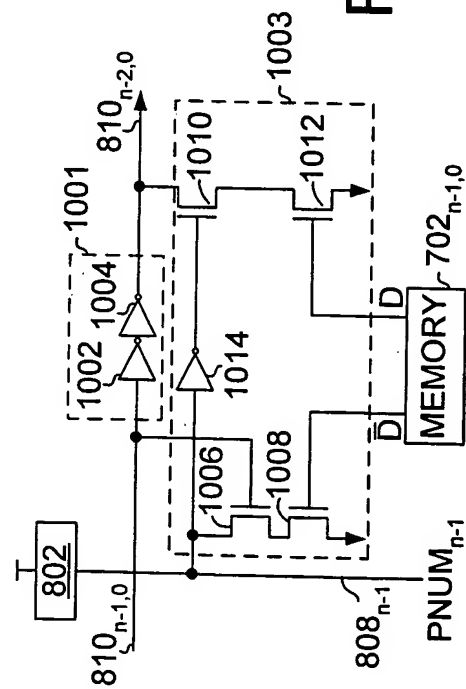
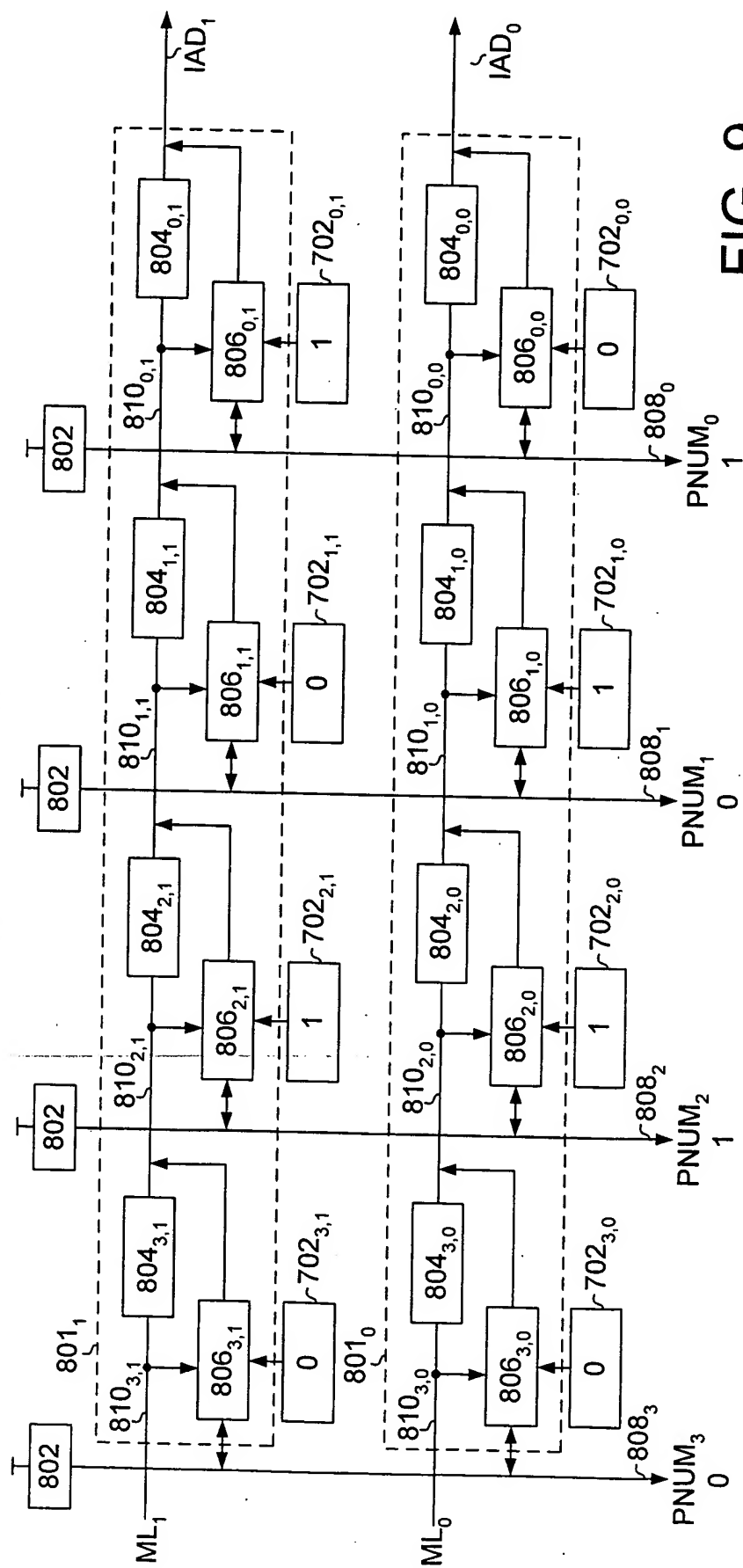


FIG. 8



400

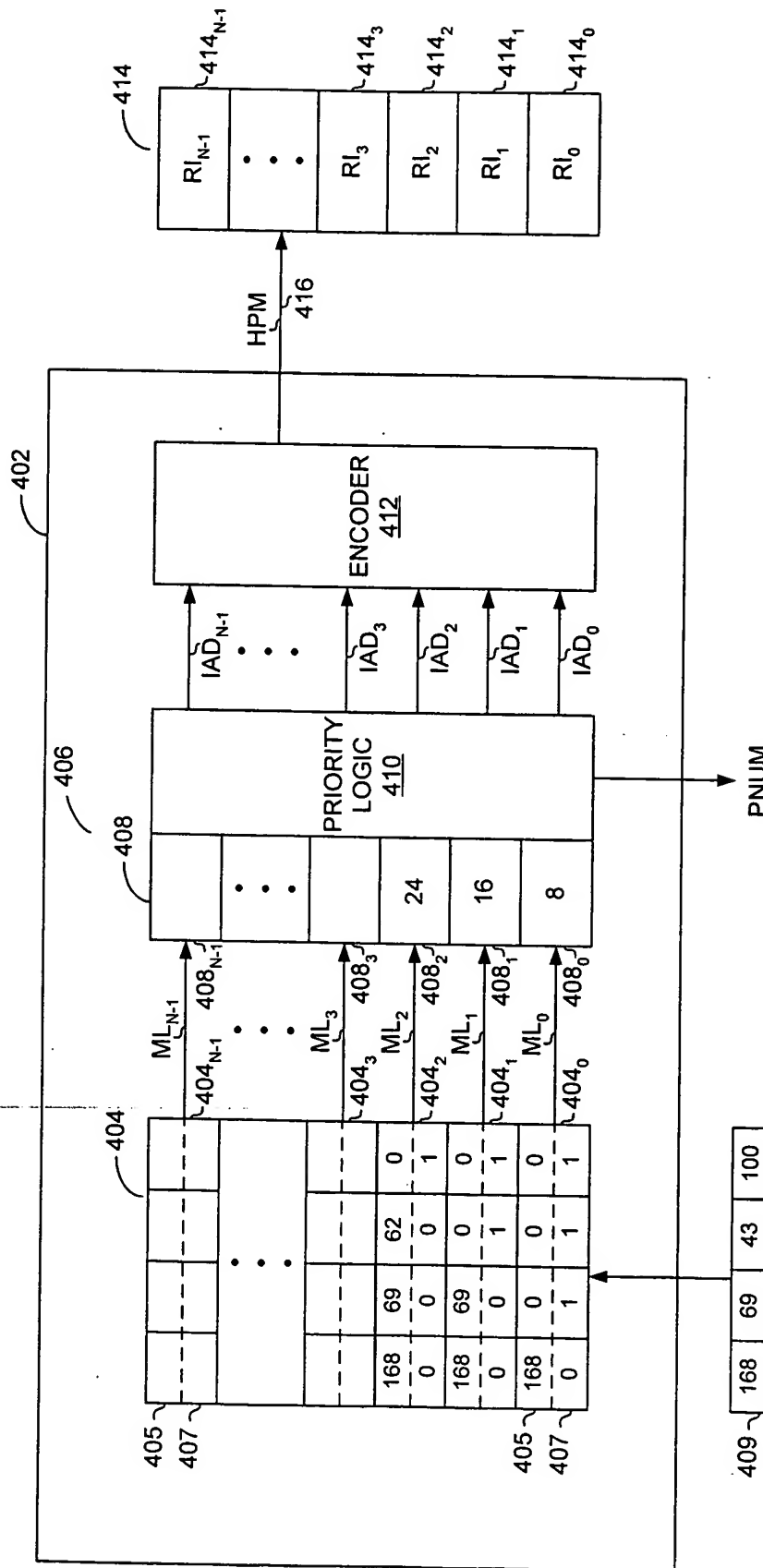


FIG. 11

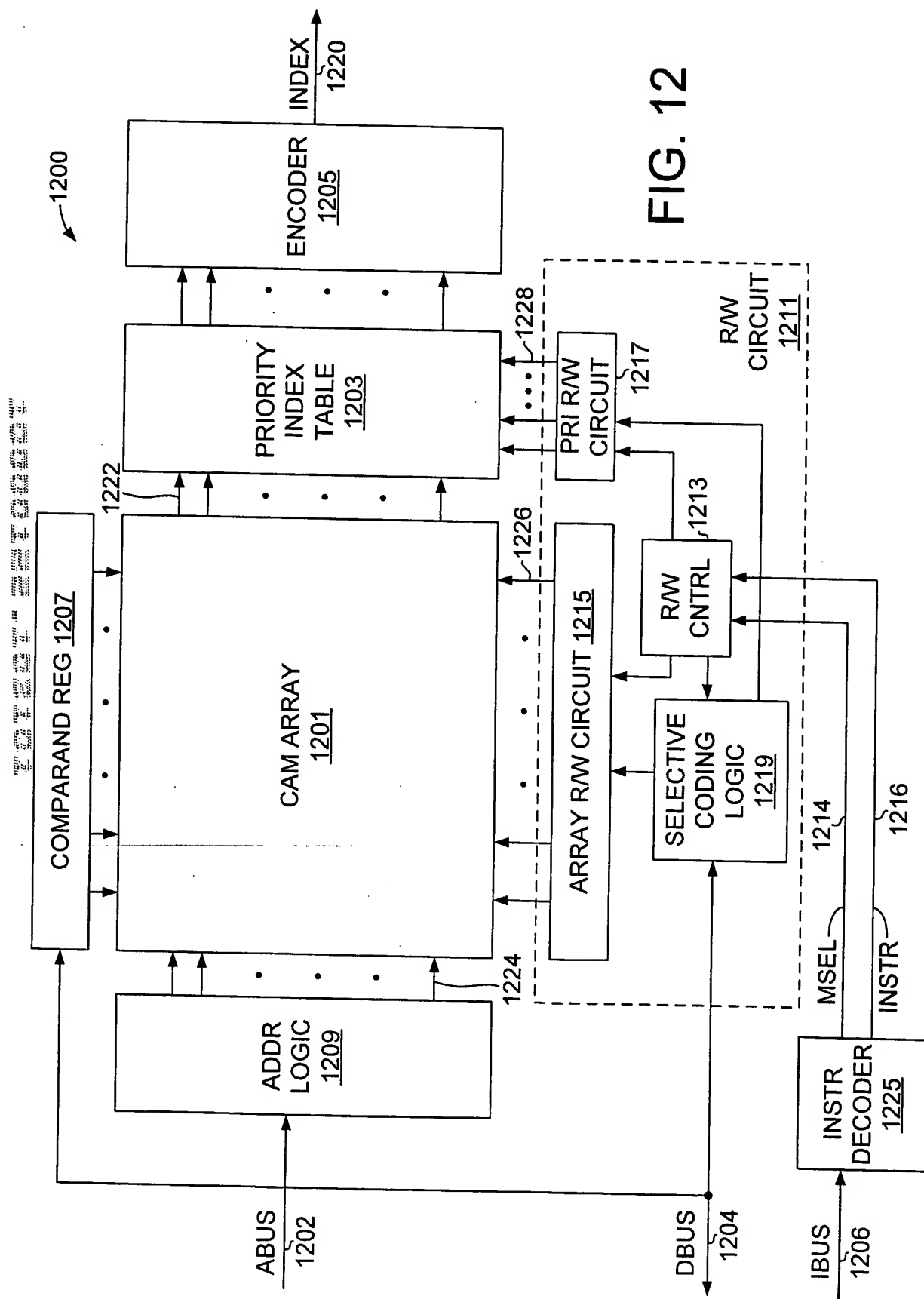


FIG. 12

FIG. 13 is a block diagram of a circuit 1300. The circuit 1300 includes a DBUS 1204, a MSEL 1214, a PRI/PREF REG 1302, a DECODER 1301, a 1303, and a 1307. The DBUS 1204 is connected to the PRI/PREF REG 1302. The MSEL 1214 is connected to the PRI/PREF REG 1302. The PRI/PREF REG 1302 is connected to the DECODER 1301. The DECODER 1301 is connected to the 1303. The 1303 is connected to the 1307. The 1307 is connected to the TO PRIORITY RW CIRCUIT. The 1303 is also connected to the TO ARRAY RW CIRCUIT.

TO ARRAY RW CIRCUIT

TO PRIORITY RW CIRCUIT

FIG. 13

TO ARRAY RW CIRCUIT

TO PRIORITY RW CIRCUIT

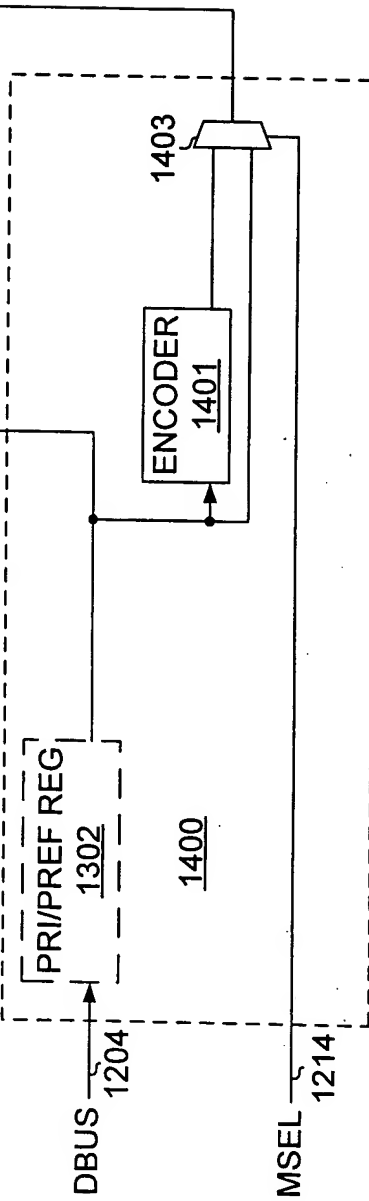
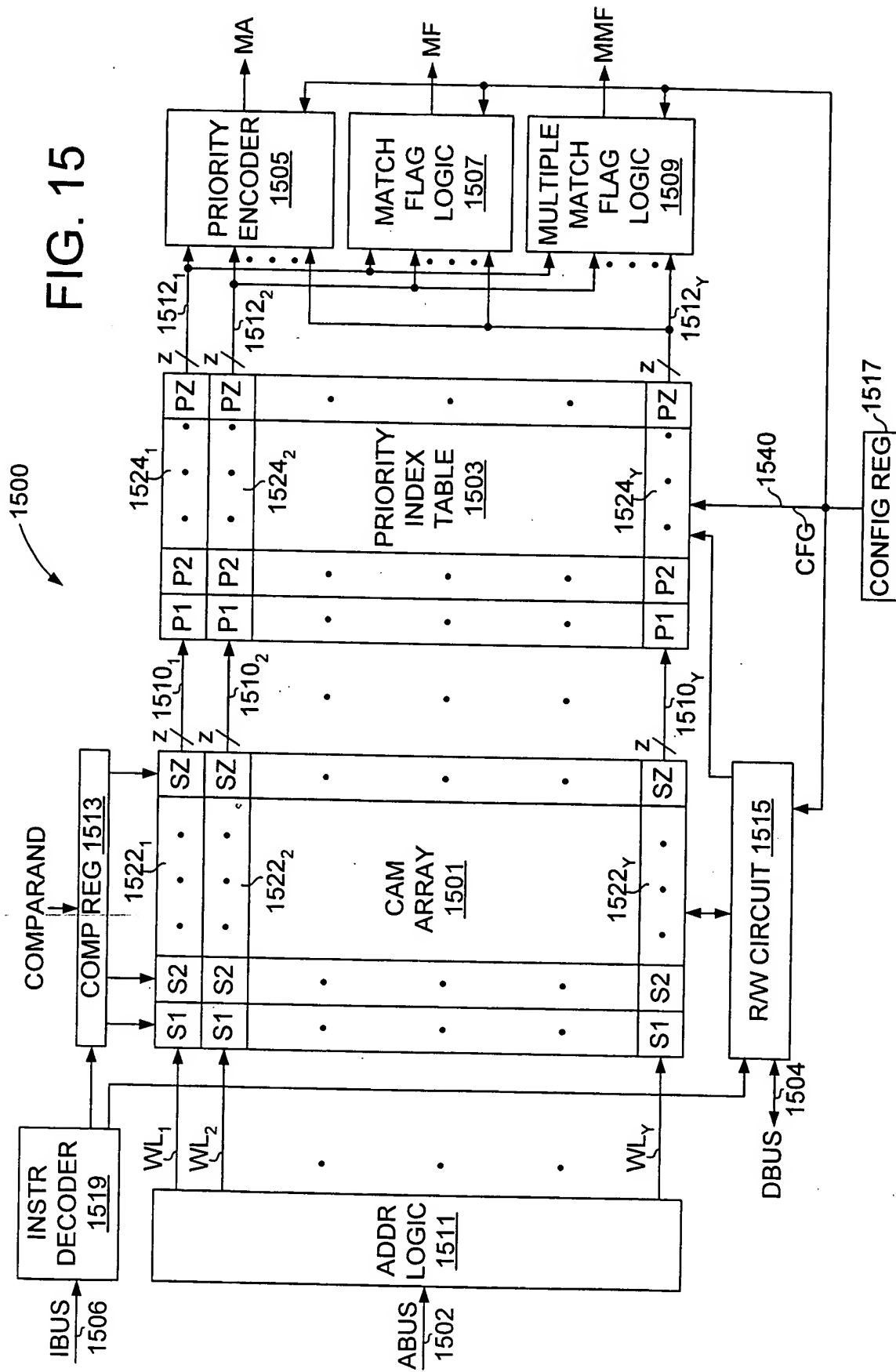


FIG. 14



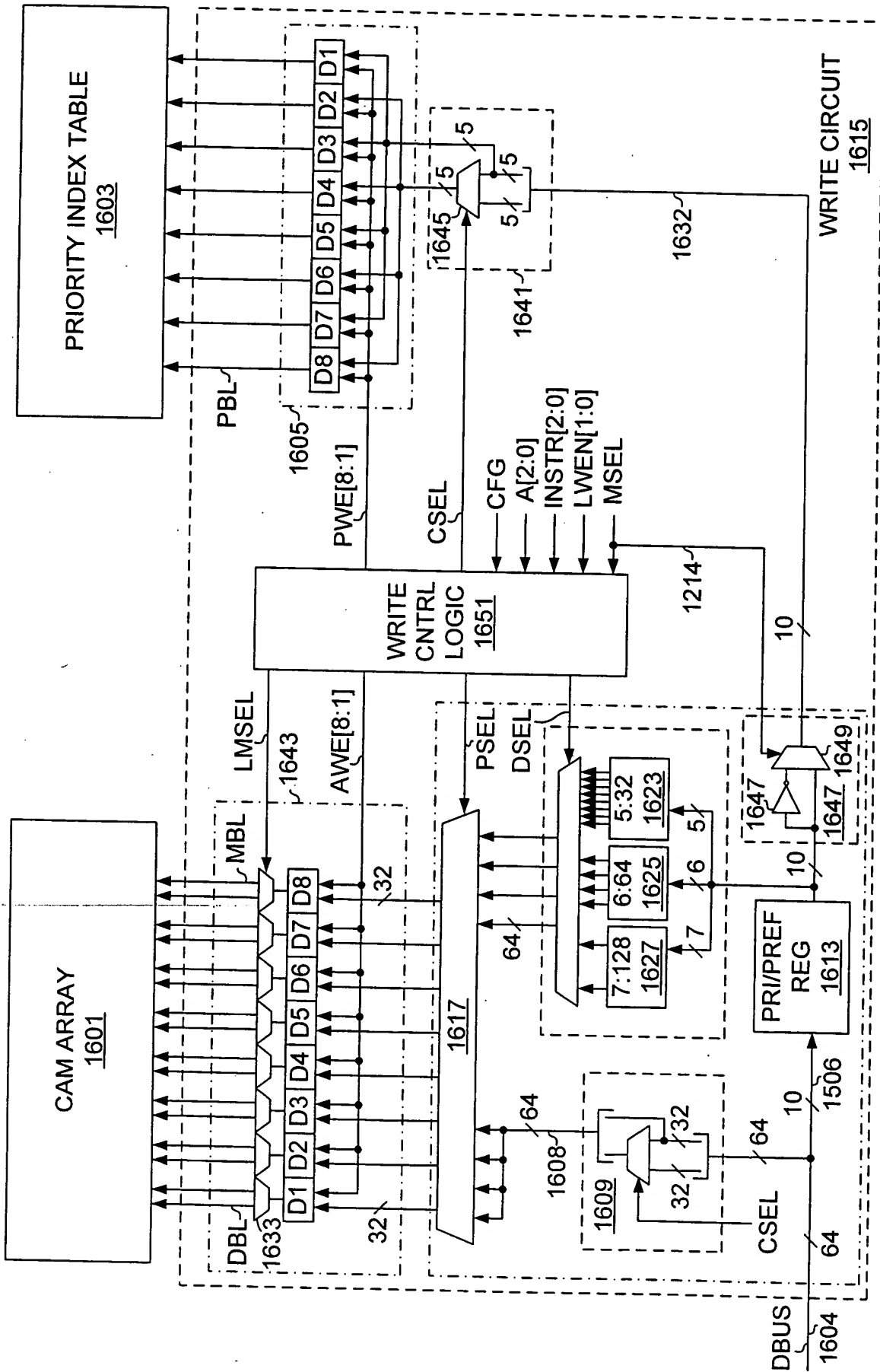


FIG. 17 is a block diagram of a circuit 1700. The circuit 1700 includes a SA DECODE LOGIC 1701, a 2:4 DECODE 1707, and a set of AND gates 1705. The SA DECODE LOGIC 1701 receives inputs A0, A1, and A2, and outputs DA1 through DA8. The 2:4 DECODE 1707 receives inputs LWEN1 and LWEN0, and outputs CS1 through CS4. The AND gates 1705 receive inputs DA1 through DA8 and CS1 through CS4, and outputs PWE1 through PWE8 and AWE1 through AWE8. The circuit 1700 also includes a multiplexer 1713, an OR gate 1711, and a set of signals CF, PW, and AW. The circuit 1700 is shown in a perspective view.

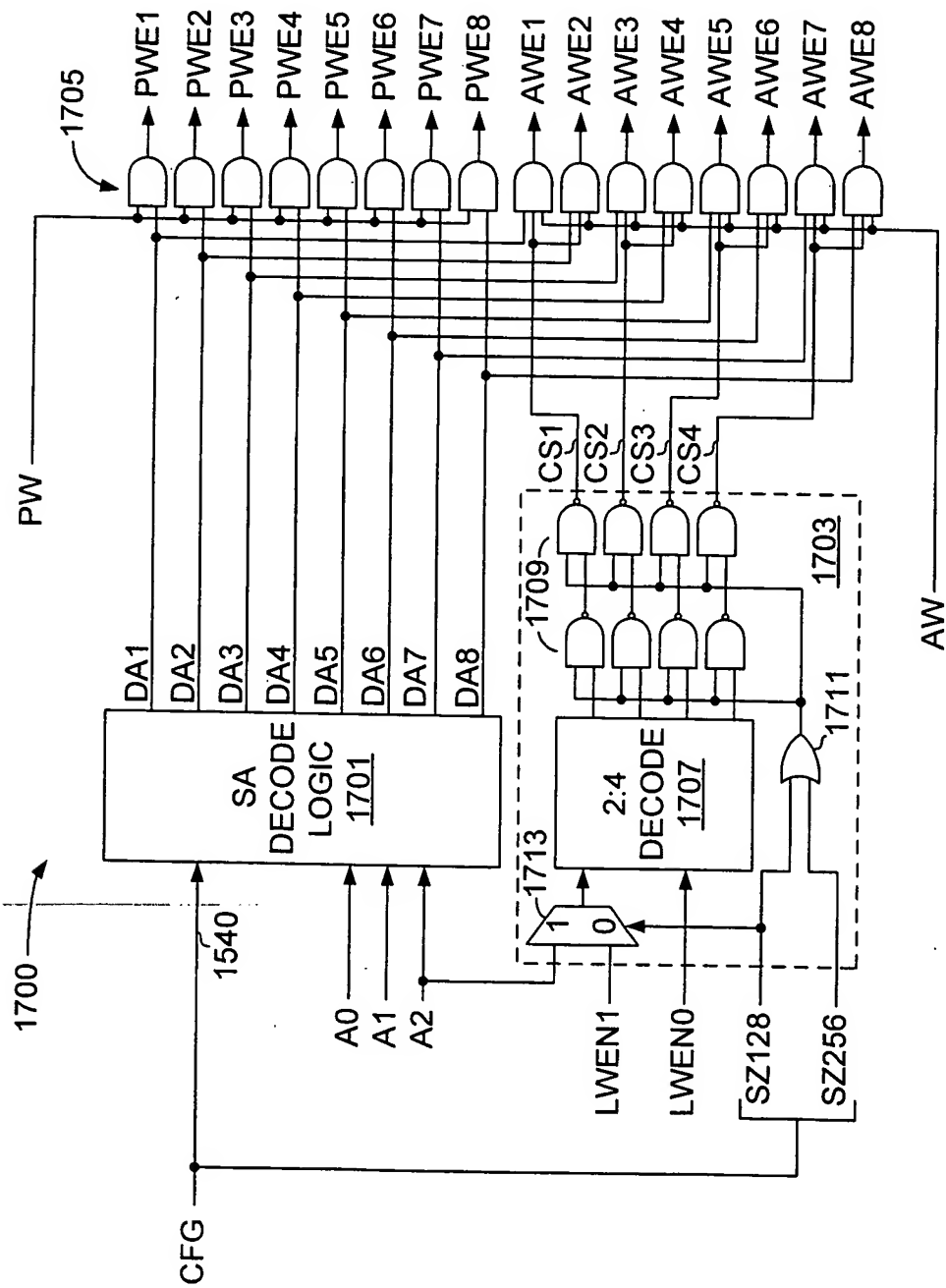


FIG. 17

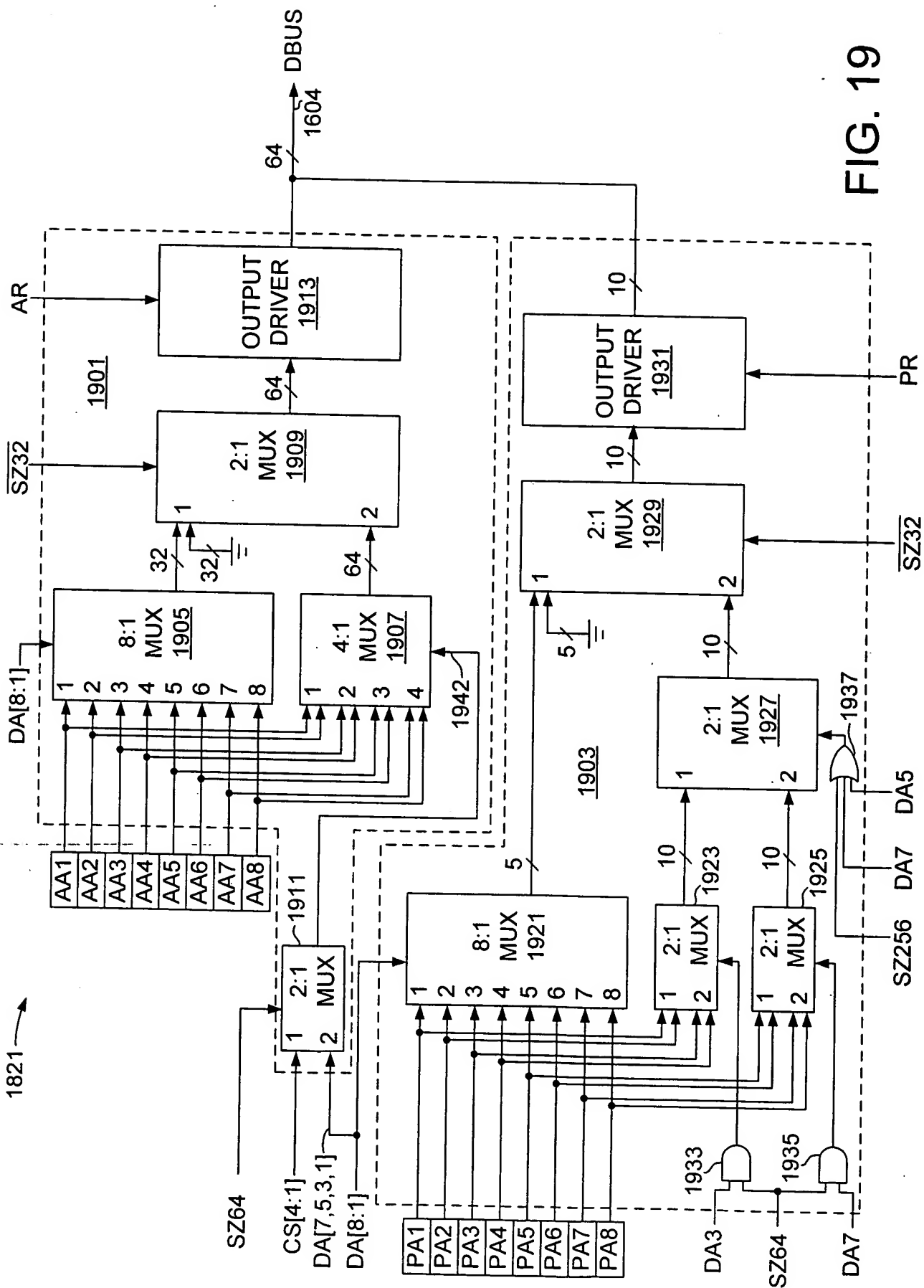


FIG. 19

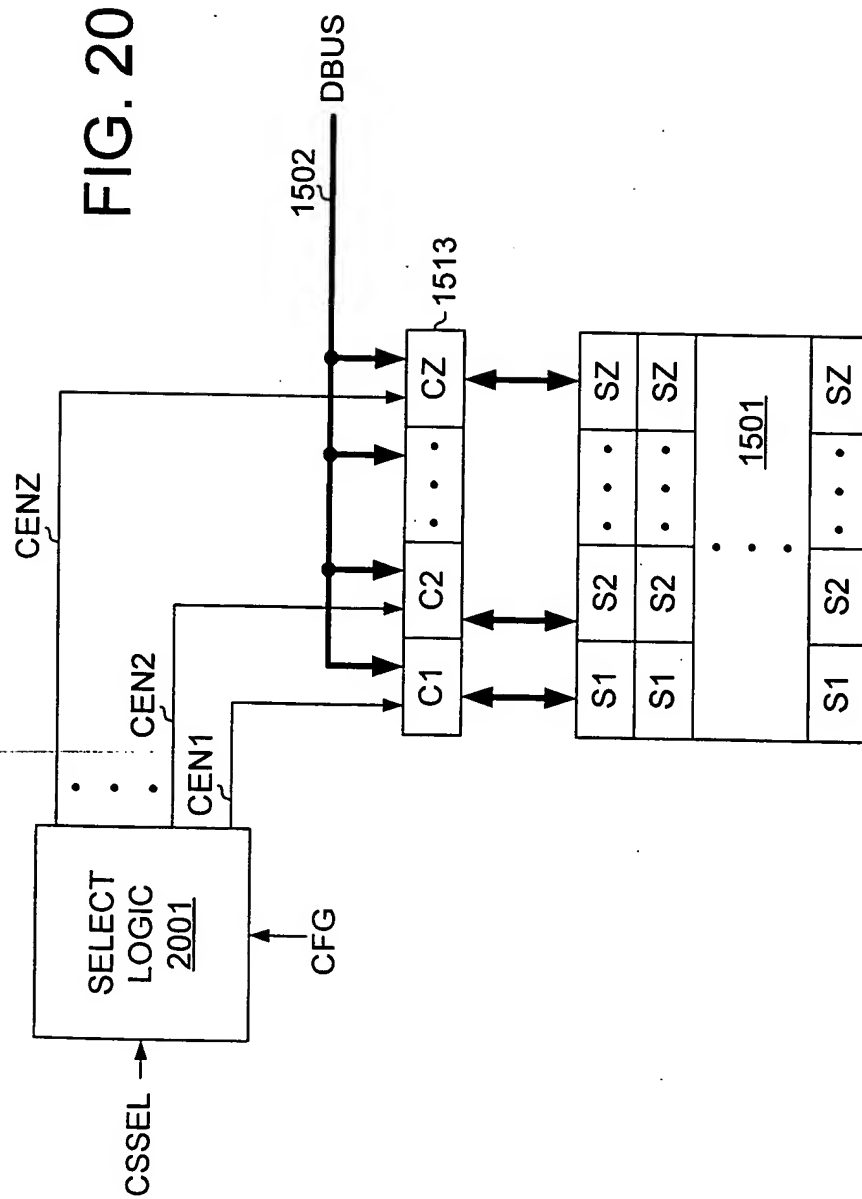
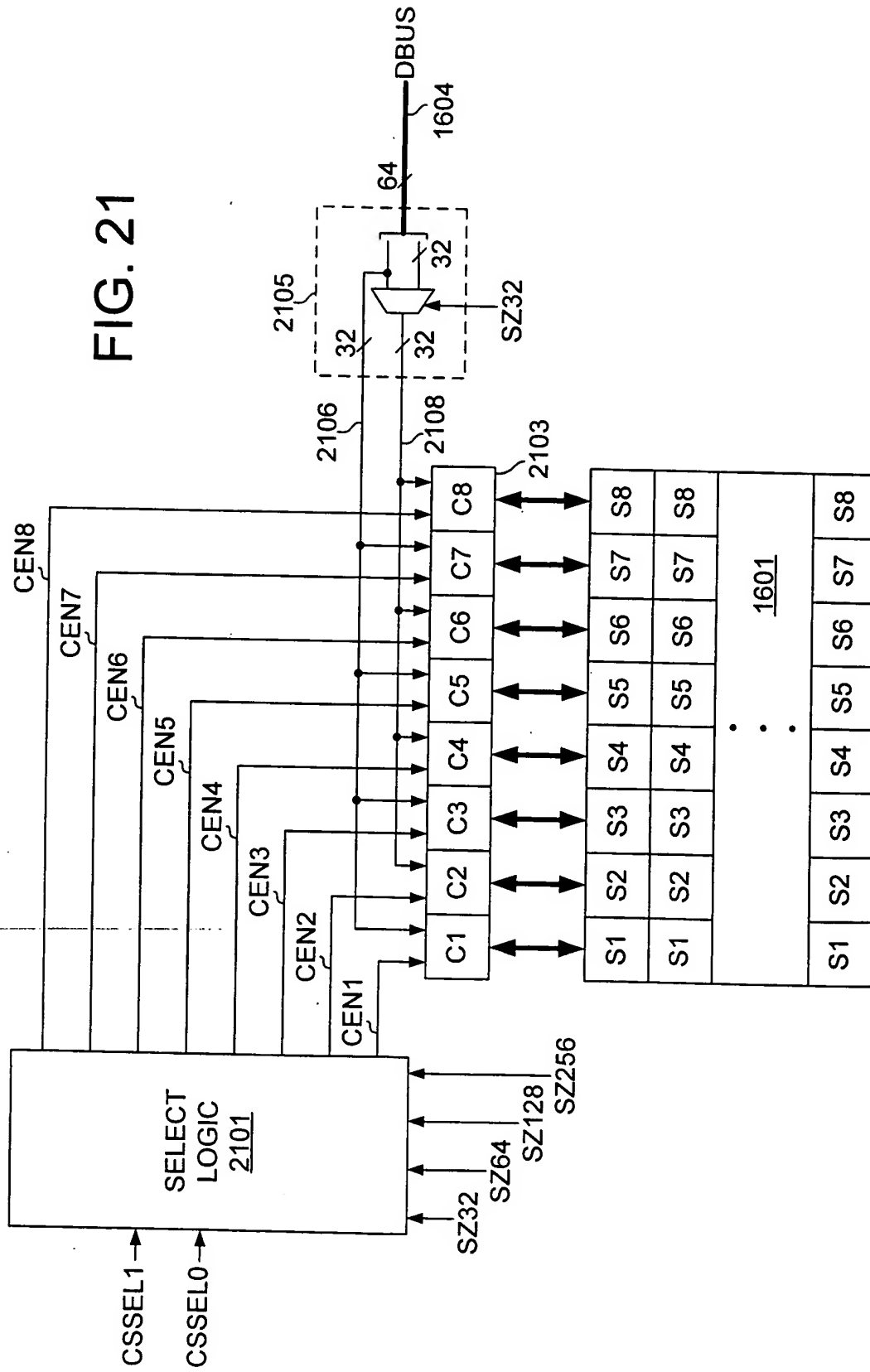


FIG. 21



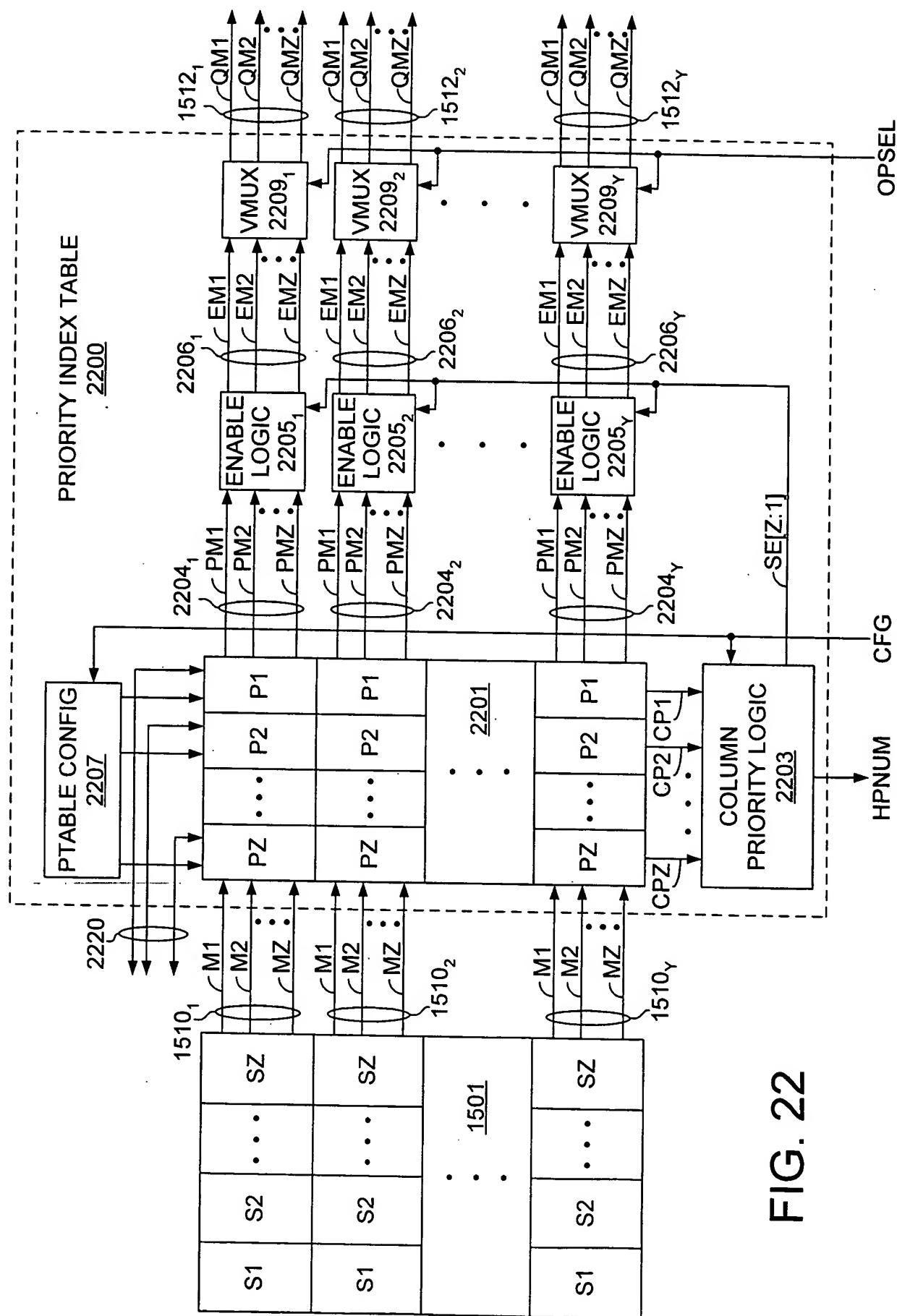


FIG. 22

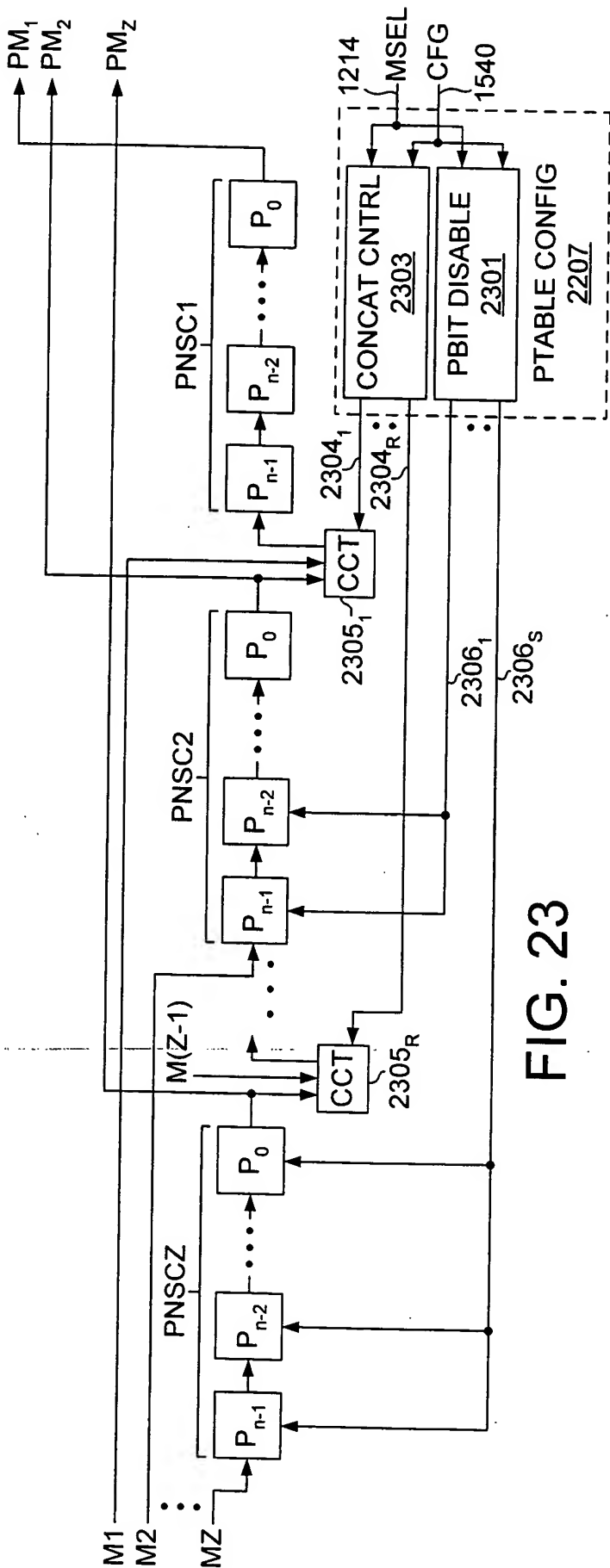


FIG. 23

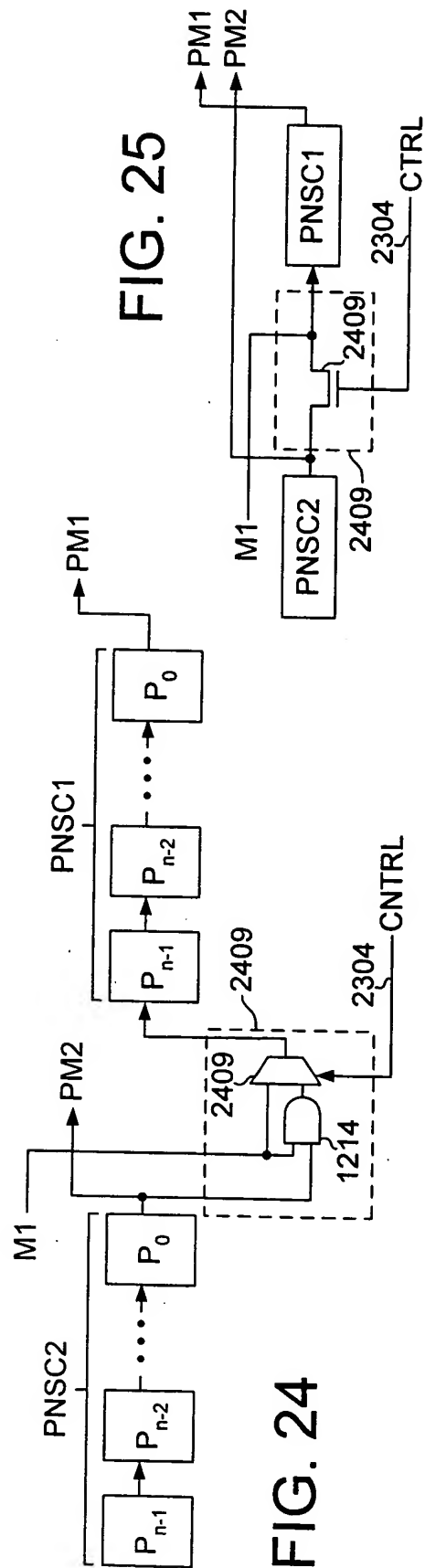


FIG. 24

FIG. 25

FIG. 26

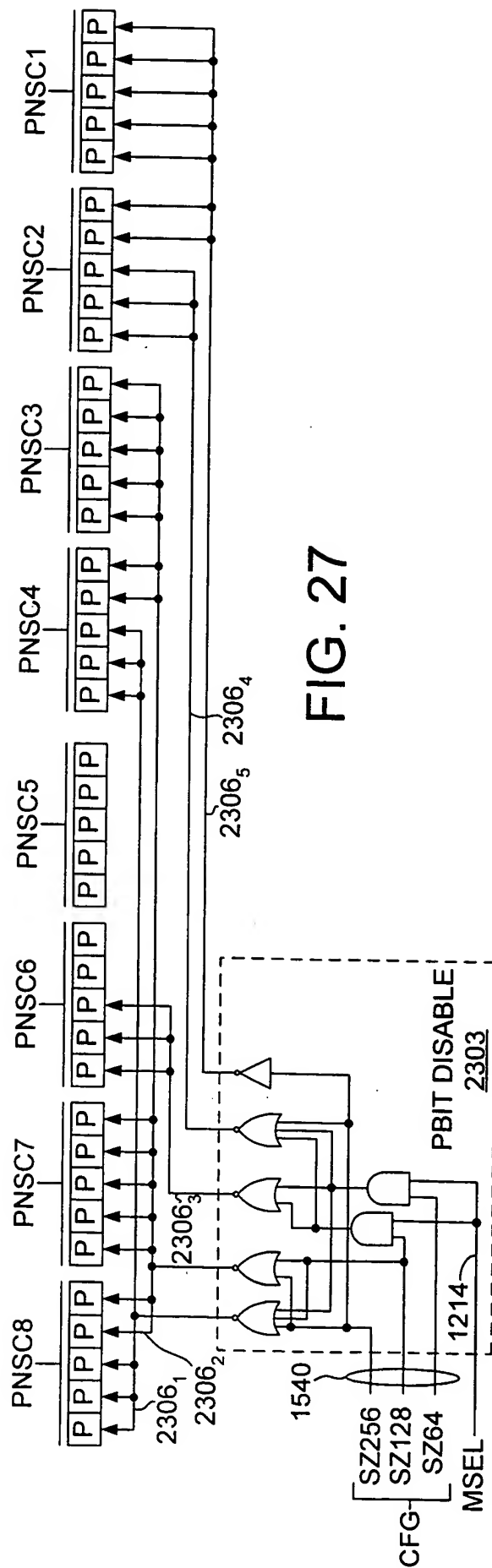


FIG. 27

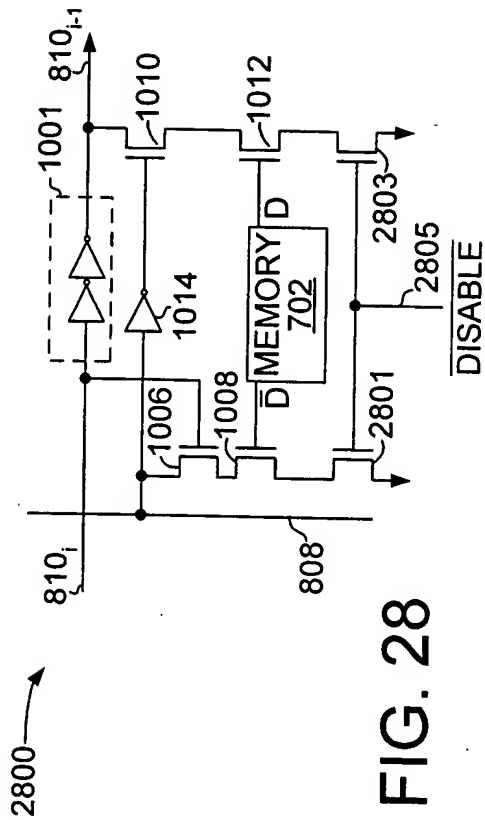


FIG. 28

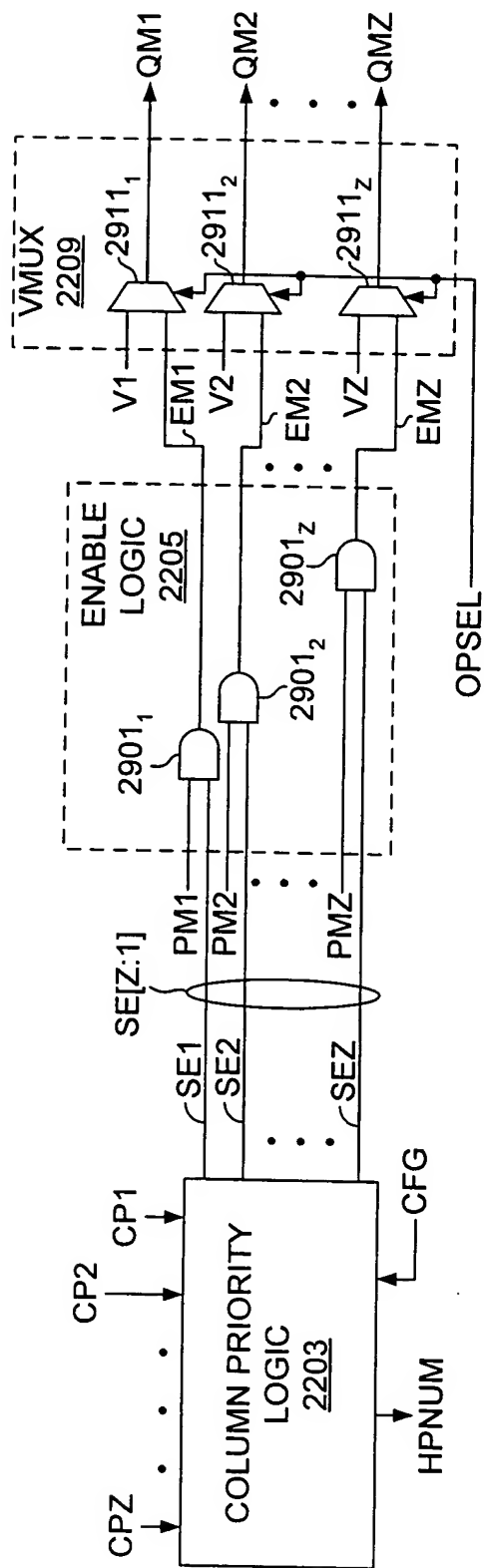


FIG. 29

FIG. 30 is a block diagram of a system architecture. The system includes a central processing unit (CPU) 3003, a memory unit 3005, and a display unit 3007. The CPU 3003 is connected to the memory unit 3005 and the display unit 3007. The memory unit 3005 is connected to the display unit 3007. The display unit 3007 is connected to the CPU 3003. The system also includes a keyboard 3001 and a mouse 3002. The keyboard 3001 and mouse 3002 are connected to the CPU 3003. The CPU 3003 is connected to the keyboard 3001 and the mouse 3002. The system is configured to process data and display the results on the display unit 3007.

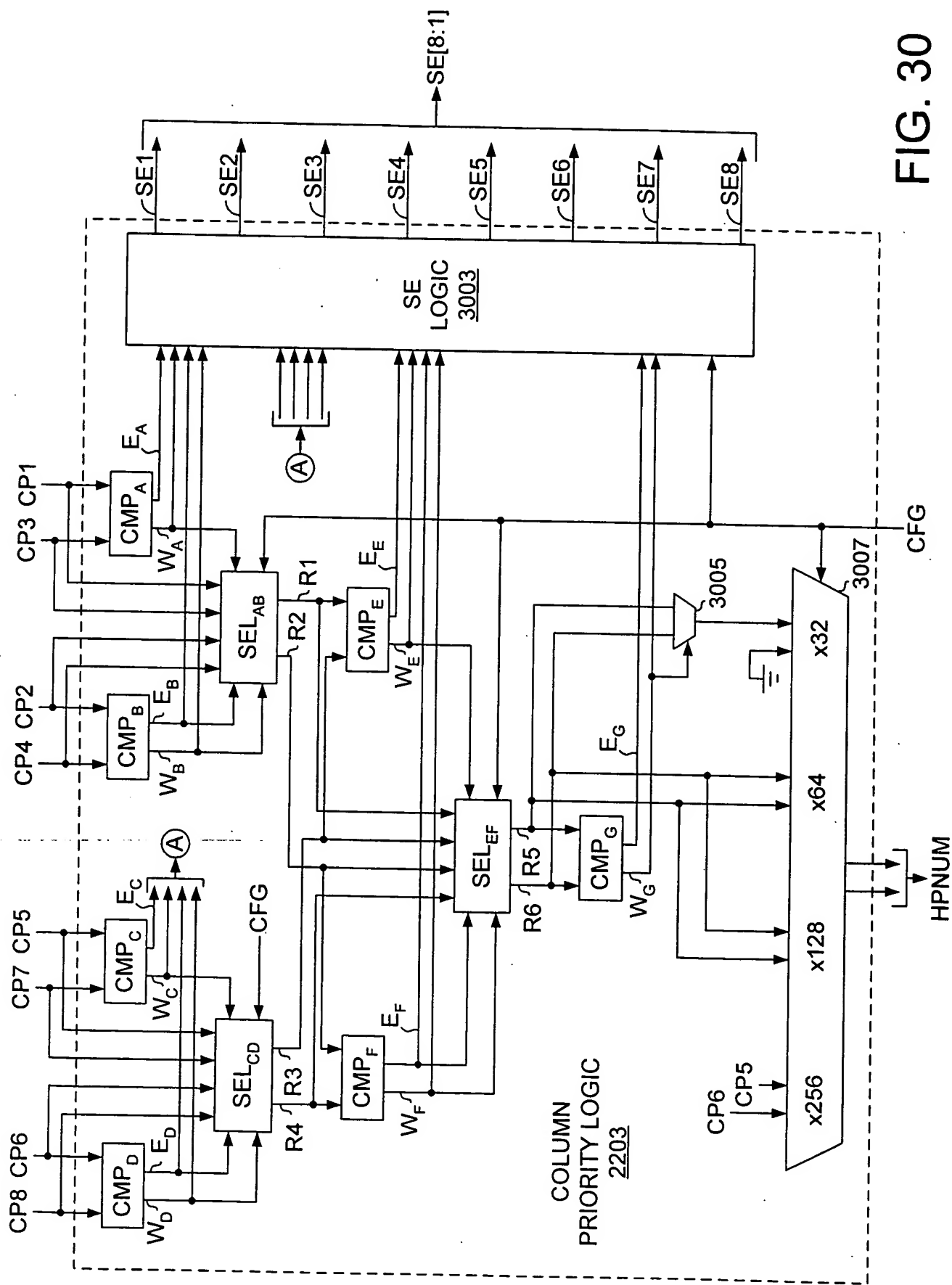


FIG. 30

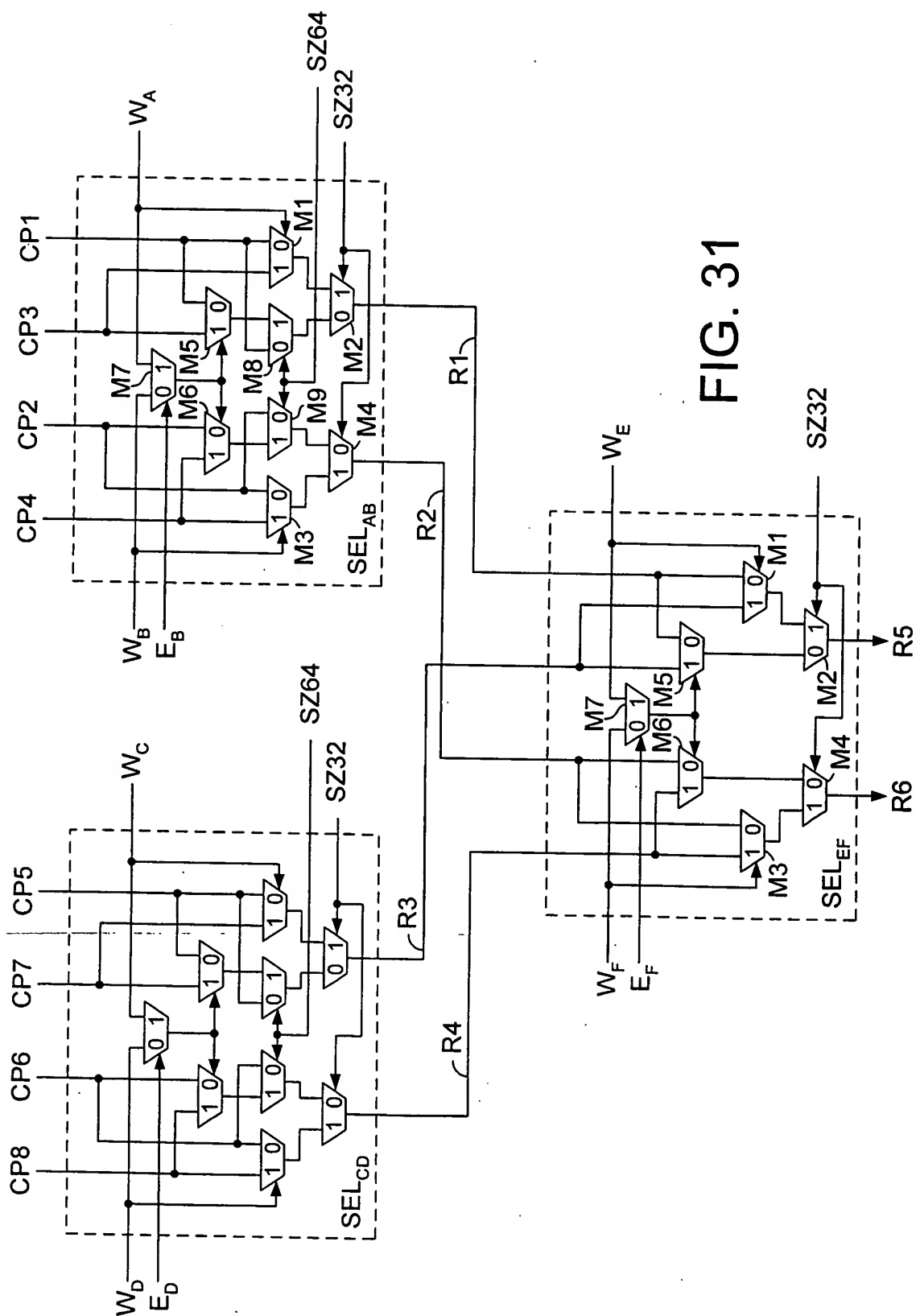


FIG. 32

| x64 | x32 | E _B | W _B | W _A | R2 | R1 |
|-----|-----|----------------|----------------|----------------|-----|-----|
| X | 1 | X | 0 | 0 | HP2 | HP1 |
| X | 1 | X | 0 | 1 | HP2 | HP3 |
| X | 1 | X | 1 | 0 | HP4 | HP1 |
| X | 1 | X | 1 | 1 | HP4 | HP3 |
| 1 | 0 | 0 | 0 | X | HP2 | HP1 |
| 1 | 0 | 0 | 1 | X | HP4 | HP3 |
| 1 | 0 | 1 | X | 0 | HP2 | HP1 |
| 1 | 0 | 1 | X | 1 | HP4 | HP3 |
| 0 | 0 | X | X | X | HP2 | HP1 |

FIG. 33

| x64 | x32 | E _D | W _D | W _C | R4 | R3 |
|-----|-----|----------------|----------------|----------------|-----|-----|
| X | 1 | X | 0 | 0 | HP6 | HP5 |
| X | 1 | X | 0 | 1 | HP6 | HP7 |
| X | 1 | X | 1 | 0 | HP8 | HP5 |
| X | 1 | X | 1 | 1 | HP8 | HP7 |
| 1 | 0 | 0 | 0 | X | HP6 | HP5 |
| 1 | 0 | 0 | 1 | X | HP8 | HP7 |
| 1 | 0 | 1 | X | 0 | HP6 | HP5 |
| 1 | 0 | 1 | X | 1 | HP8 | HP7 |
| 0 | 0 | X | X | X | HP6 | HP5 |

FIG. 34

| x32 | E _F | W _F | W _E | R6 | R5 |
|-----|----------------|----------------|----------------|----|----|
| 1 | X | 0 | 0 | R2 | R1 |
| 1 | X | 0 | 1 | R2 | R3 |
| 1 | X | 1 | 0 | R4 | R1 |
| 1 | X | 1 | 1 | R4 | R3 |
| 0 | 0 | 0 | X | R2 | R1 |
| 0 | 0 | 1 | X | R4 | R3 |
| 0 | 1 | X | 0 | R2 | R1 |
| 0 | 1 | X | 1 | R4 | R3 |

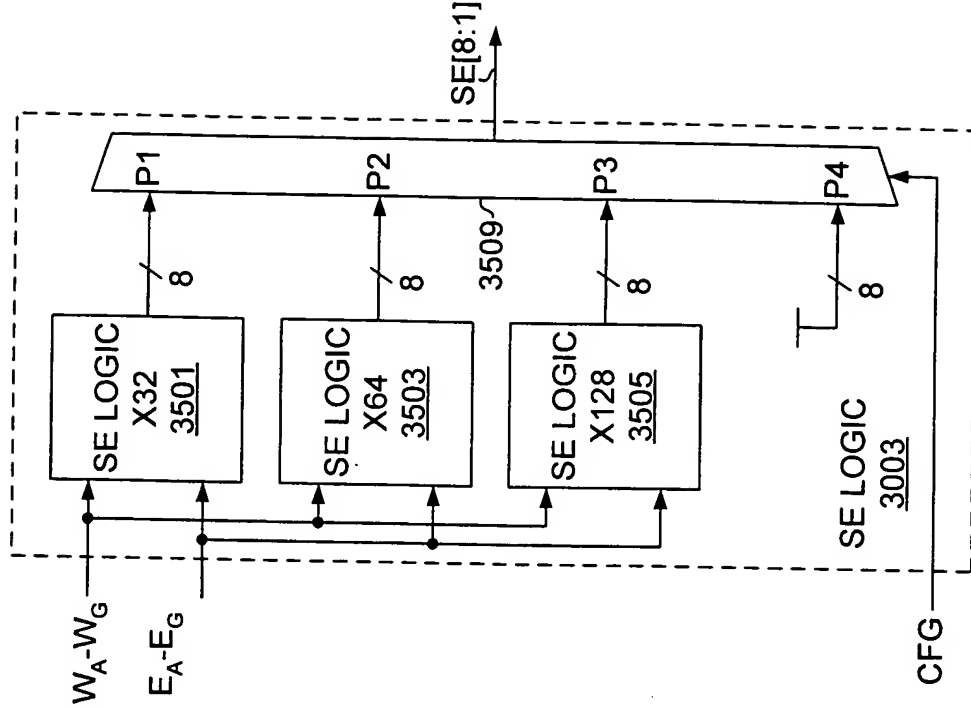


FIG. 35

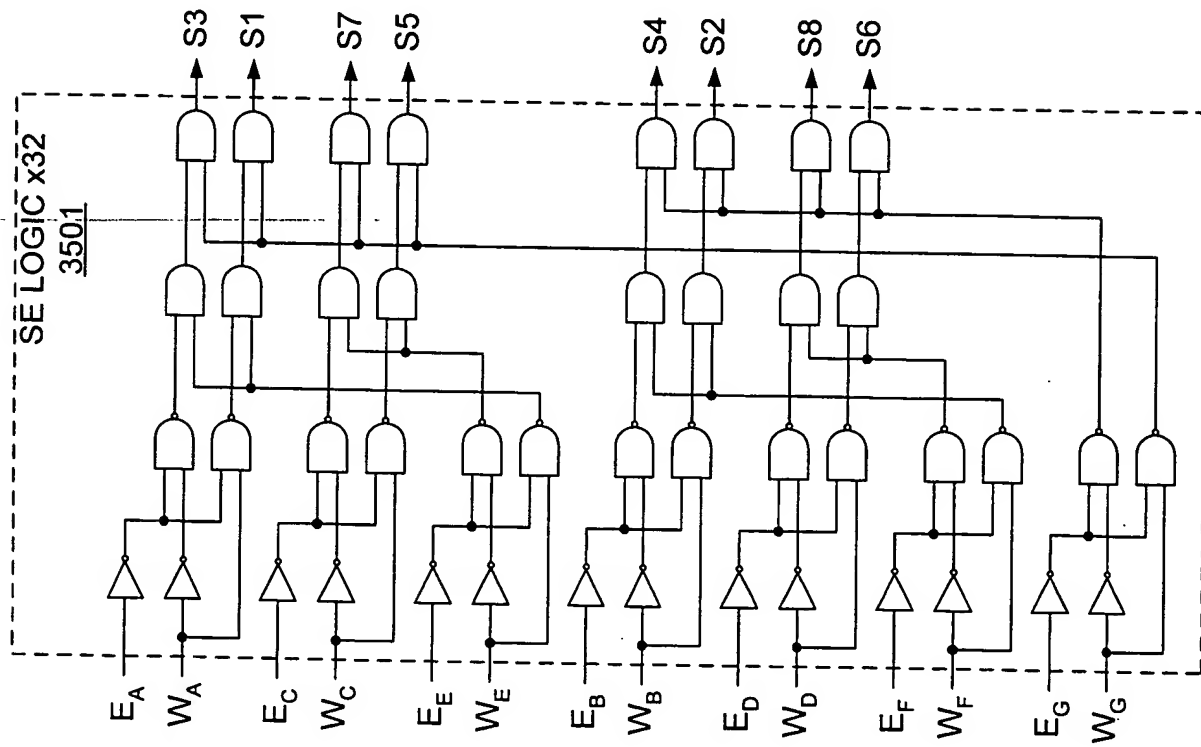


FIG. 36

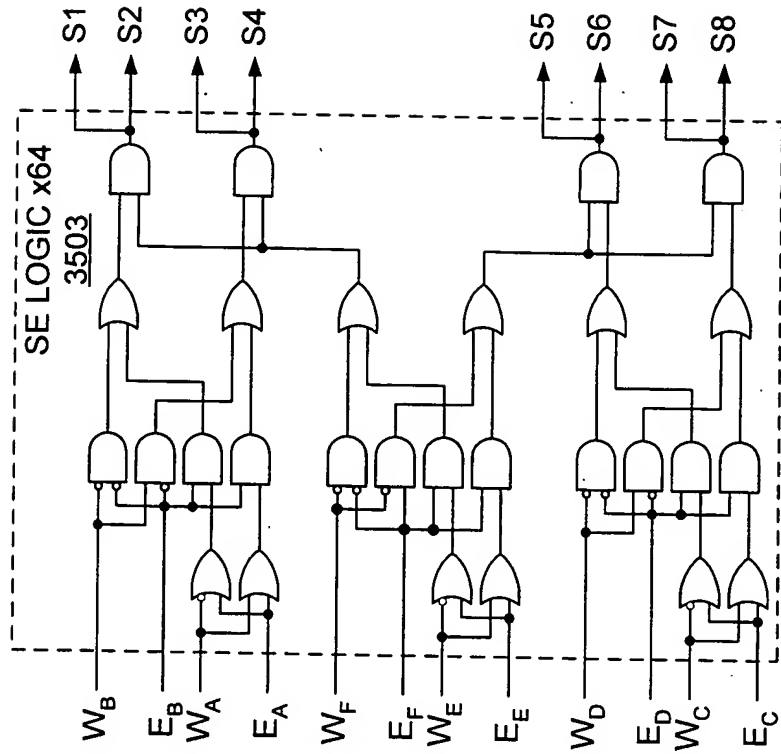


FIG. 37

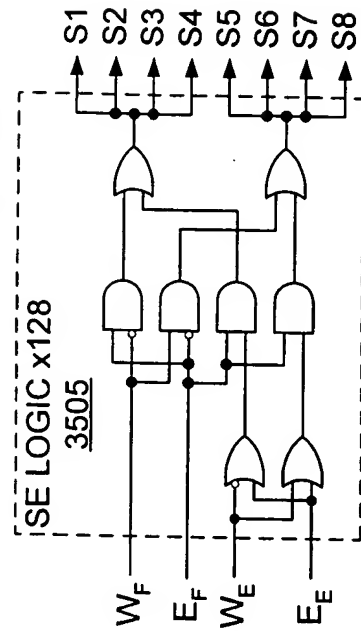


FIG. 38

FIG. 39 is a block diagram of a system 1507. The system 1507 includes a plurality of row match logic blocks 3901₁, 3901₂, ..., 3901_Y and an array match logic block 3903. Each row match logic block 3901_i receives a set of input signals 1512_i (QM1, QM2, ..., QMZ) and a configuration signal CFG. The row match logic blocks 3901₁, 3901₂, ..., 3901_Y output match signals MR1, MR2, ..., MRY, respectively. The array match logic block 3903 receives the match signals MR1, MR2, ..., MRY and outputs a final match signal MF.

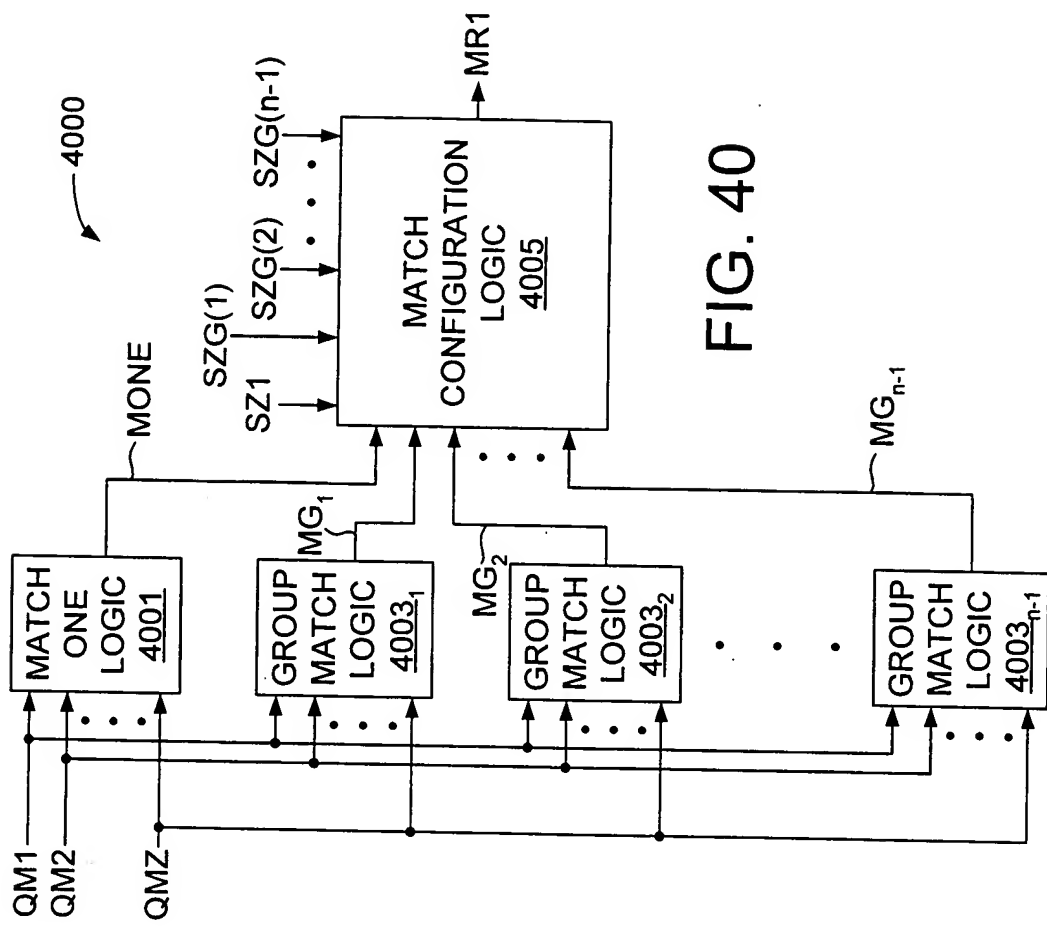


FIG. 40

FIG. 39

FIG. 41 is a schematic diagram of a logic circuit 4101. The circuit 4101 is an OR gate with multiple inputs labeled QM1, QM2, ..., QMZ. The output of the circuit 4101 is labeled MONE.

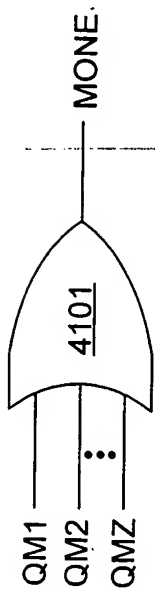


FIG. 41

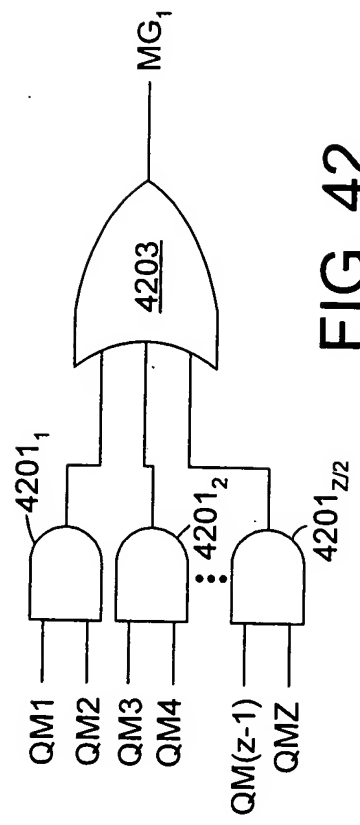


FIG. 42

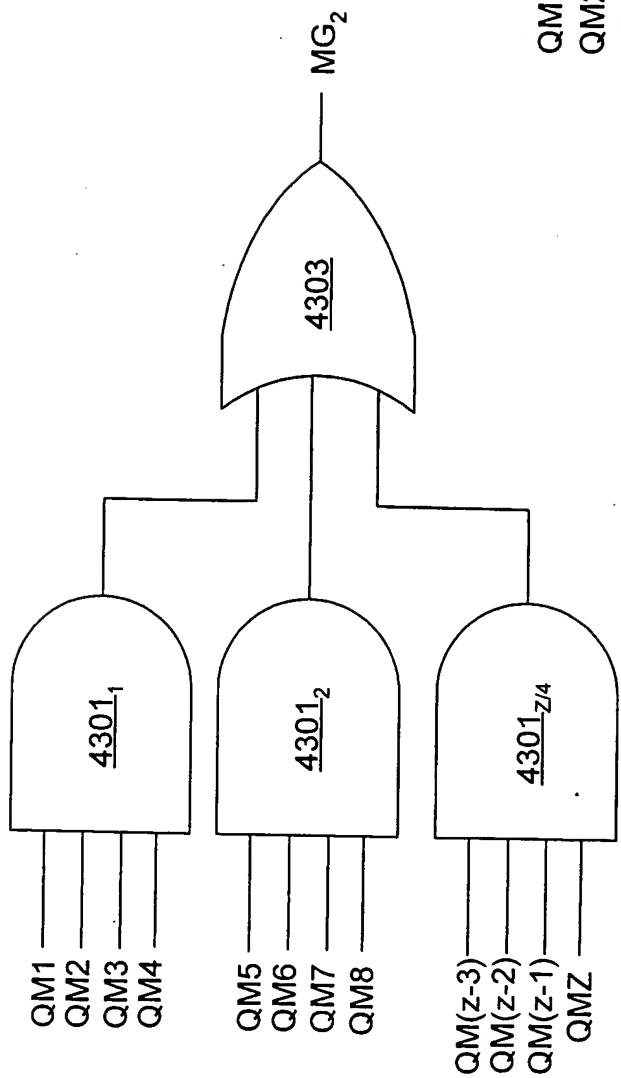


FIG. 43



FIG. 44

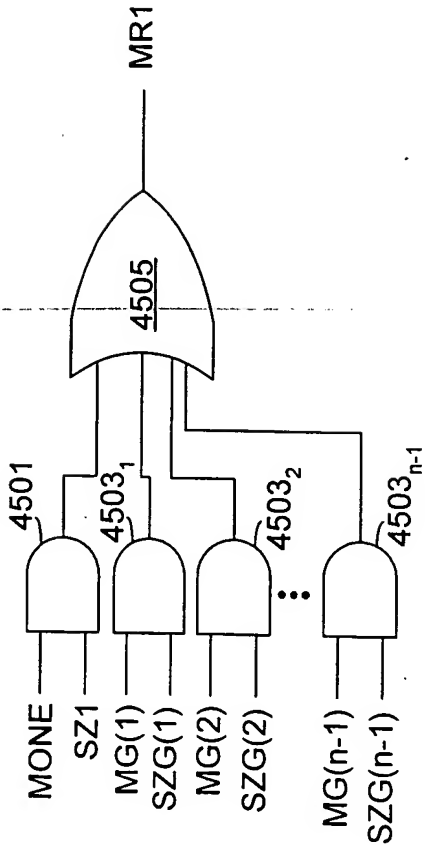


FIG. 45

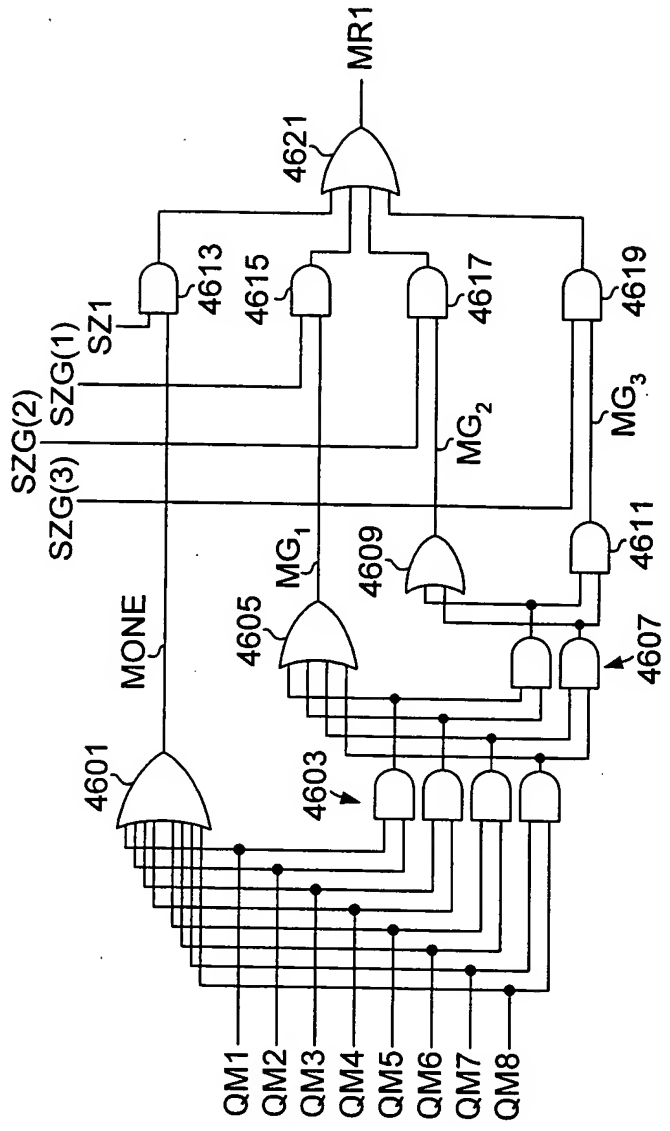


FIG. 46

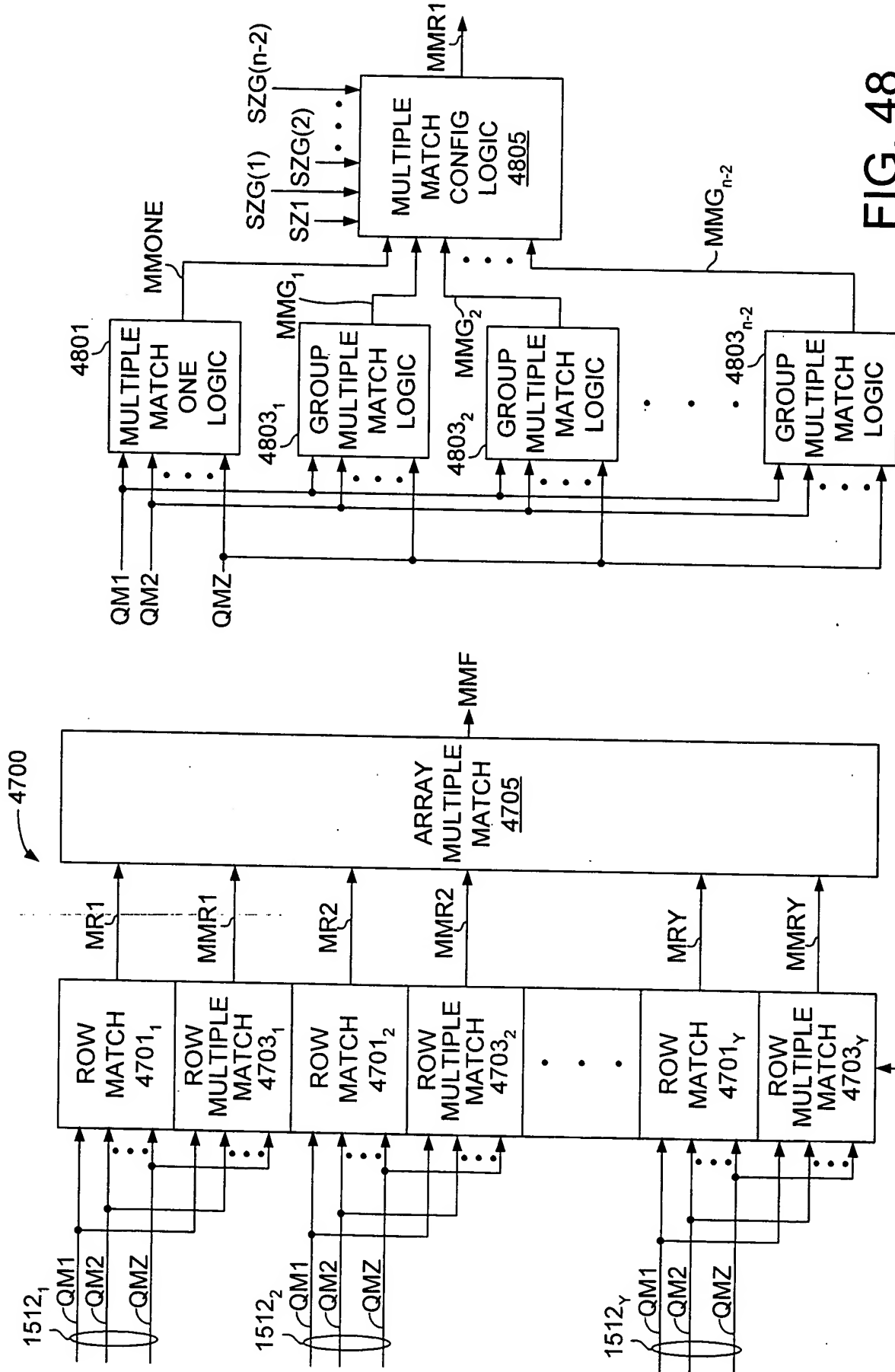


FIG. 47

FIG. 48

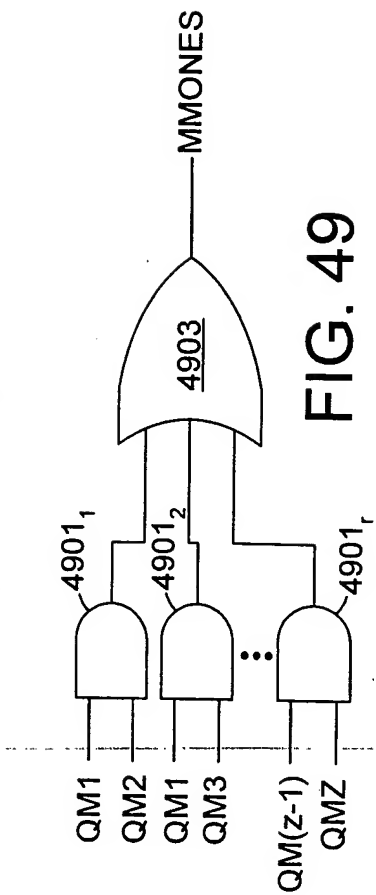


FIG. 49

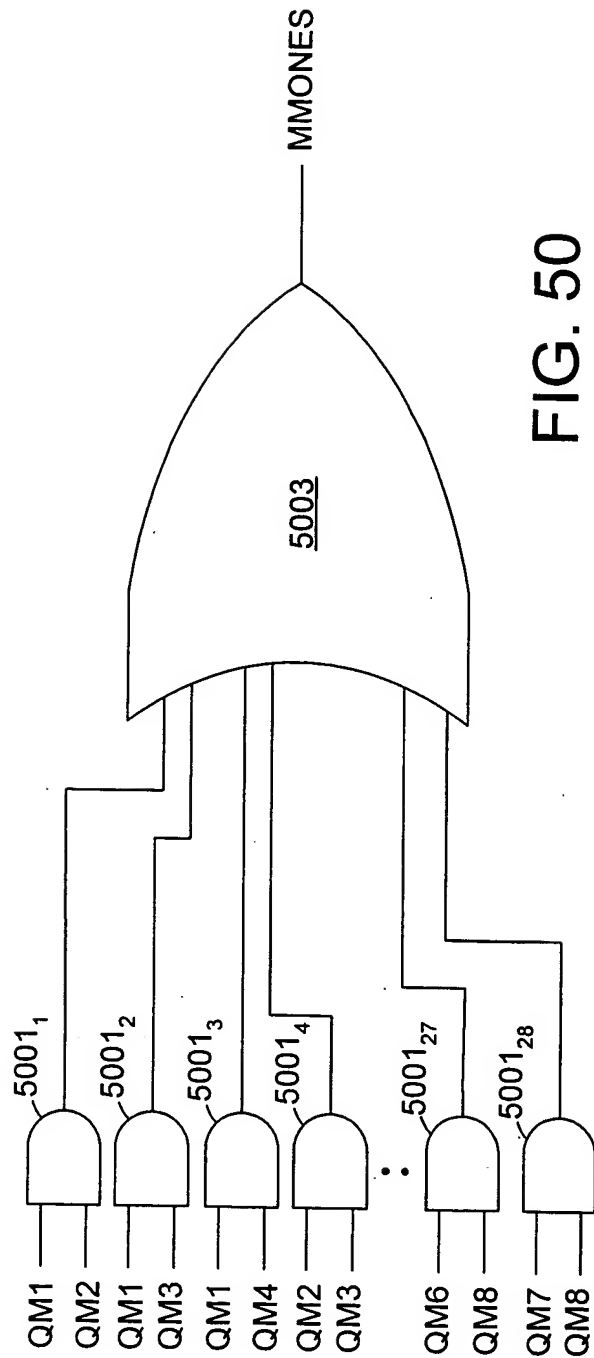


FIG. 50

FIG. 51 is a block diagram of a multiple match circuit 5103. The circuit 5103 has a plurality of inputs QM1, QM2, QM3, QM4, ..., QM(z-1), QMZ. The circuit 5103 has a single output MMG1. The circuit 5103 is a multiple match circuit.

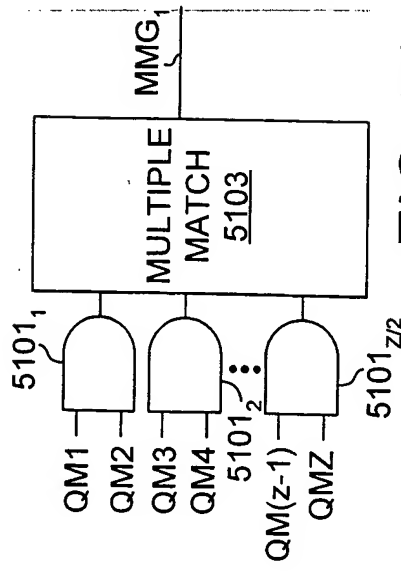


FIG. 51

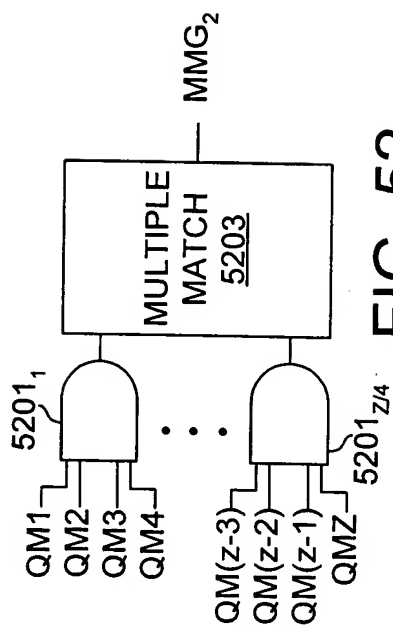


FIG. 52

FIG. 55

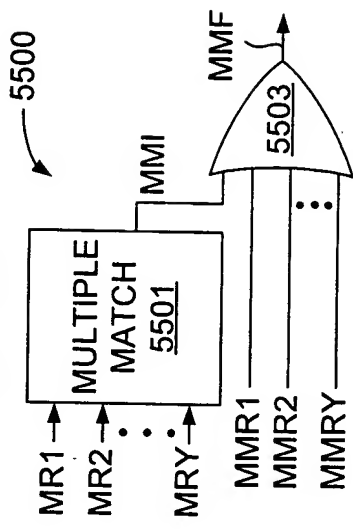


FIG. 53

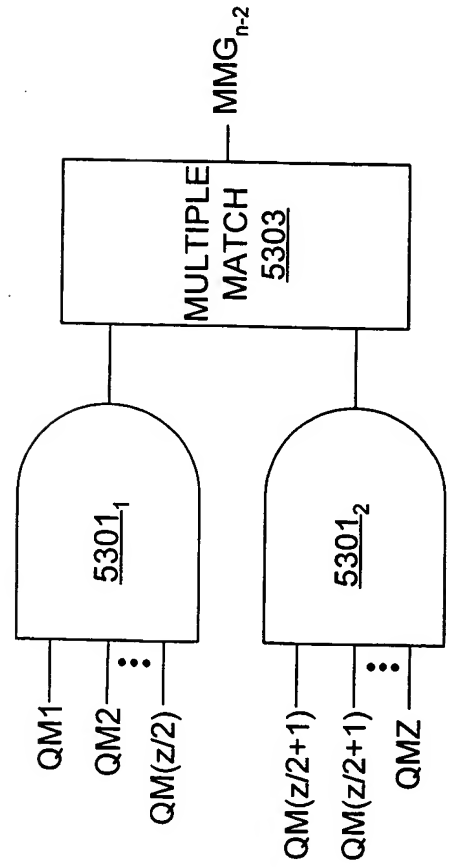


FIG. 54

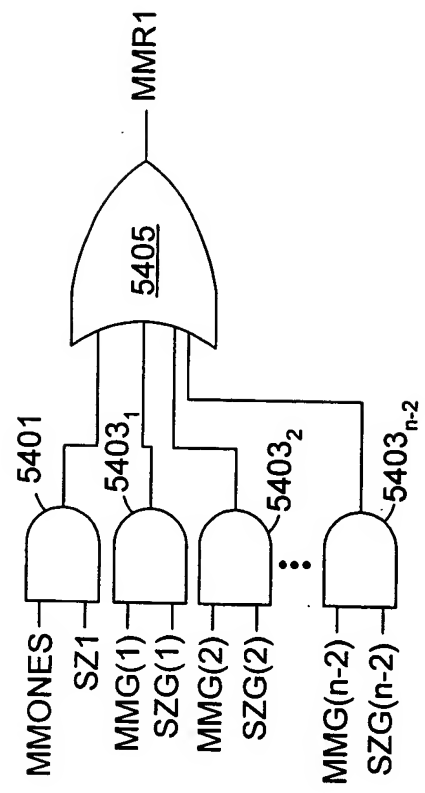
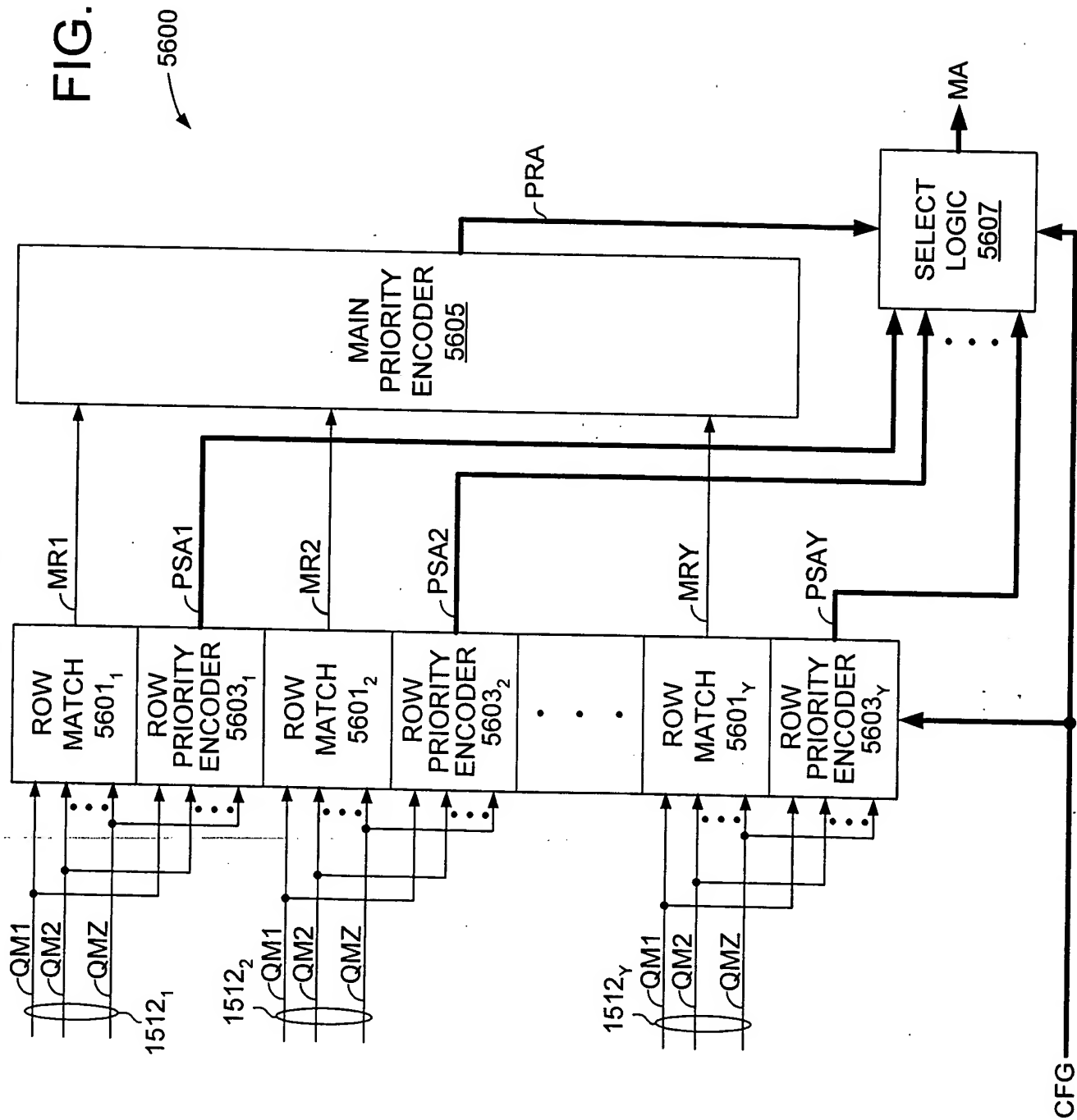


FIG. 55

FIG. 56



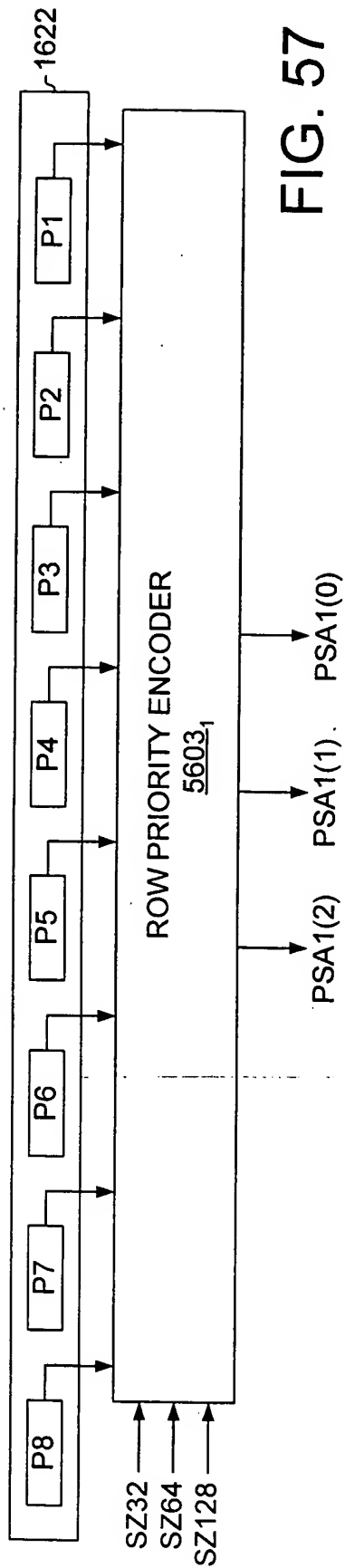


FIG. 57

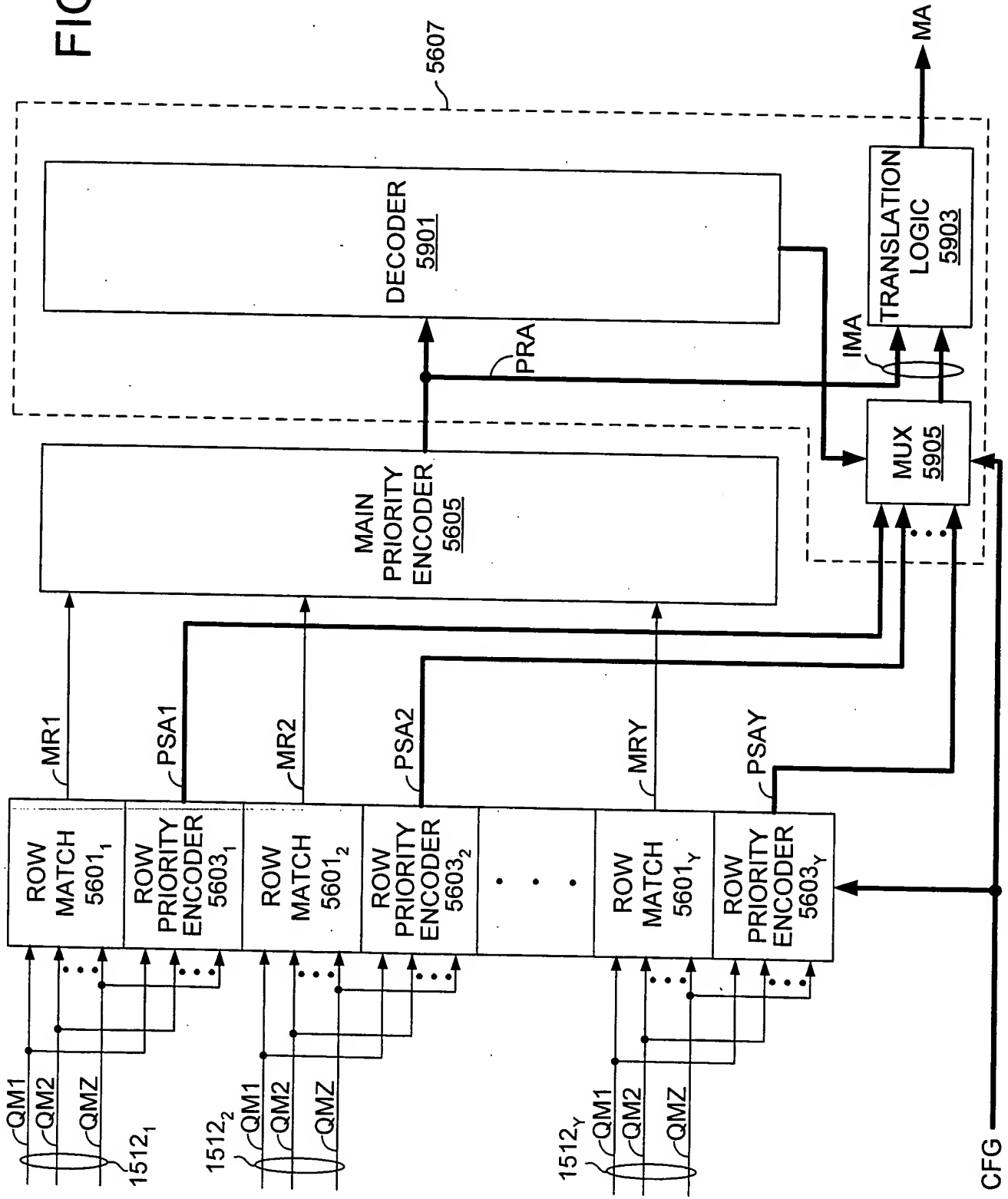
| CFG | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|---------|---------|---------|
| SZ32 | | | | | | | | | | | |
| QM1 | QM2 | QM3 | QM4 | QM5 | QM6 | QM7 | QM8 | ADDR | PSA1(2) | PSA1(1) | PSA1(0) |
| 1 | X | X | X | X | X | X | X | 0 | 0 | 0 | 0 |
| 0 | 1 | X | X | X | X | X | X | 1 | 0 | 0 | 1 |
| 0 | 0 | 1 | X | X | X | X | X | 2 | 0 | 1 | 0 |
| 0 | 0 | 0 | 1 | X | X | X | X | 3 | 0 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 | X | X | X | 4 | 1 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1 | X | X | 5 | 1 | 0 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | X | 6 | 1 | 1 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | X | X | X | X |

| SZ64 | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|------|---------|---------|---------|
| QM1 | QM2 | QM3 | QM4 | QM5 | QM6 | QM7 | QM8 | ADDR | PSA1(2) | PSA1(1) | PSA1(0) |
| 1 | | X | | X | | X | | 0 | 0 | 0 | X |
| 0 | | 1 | | X | | X | | 1 | 0 | 1 | X |
| 0 | | 0 | | 1 | | X | | 2 | 1 | 0 | X |
| 0 | | 0 | | 0 | | 1 | | 3 | 1 | 1 | X |
| 0 | | 0 | | 0 | | 0 | | X | X | X | X |

| SZ128 | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|------|---------|---------|---------|
| QM1 | QM2 | QM3 | QM4 | QM5 | QM6 | QM7 | QM8 | ADDR | PSA1(2) | PSA1(1) | PSA1(0) |
| 1 | | | | | X | | | 0 | 0 | X | X |
| 0 | | | | | 1 | | | 1 | 1 | X | X |
| 0 | | | | | 0 | | | X | X | X | X |

FIG. 58

FIG. 59



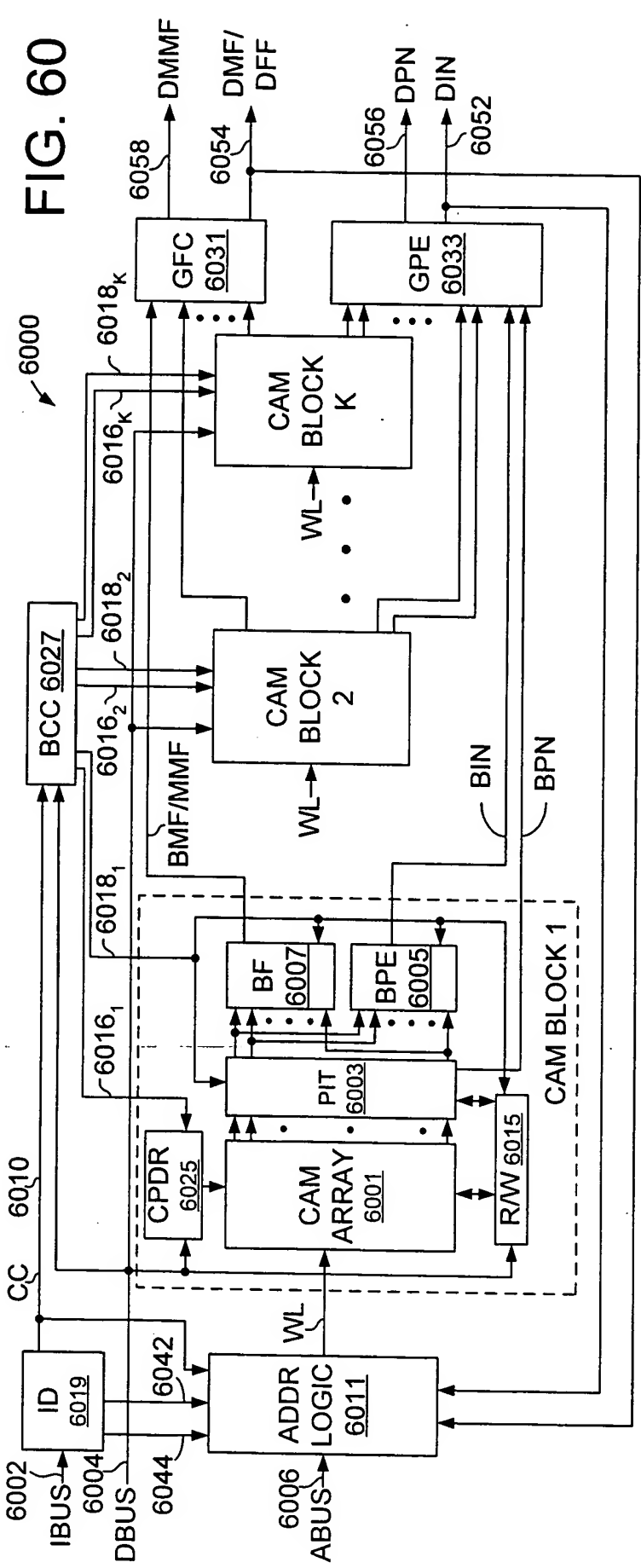


FIG. 60

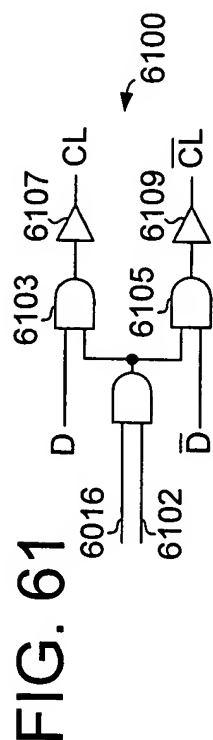


FIG. 61

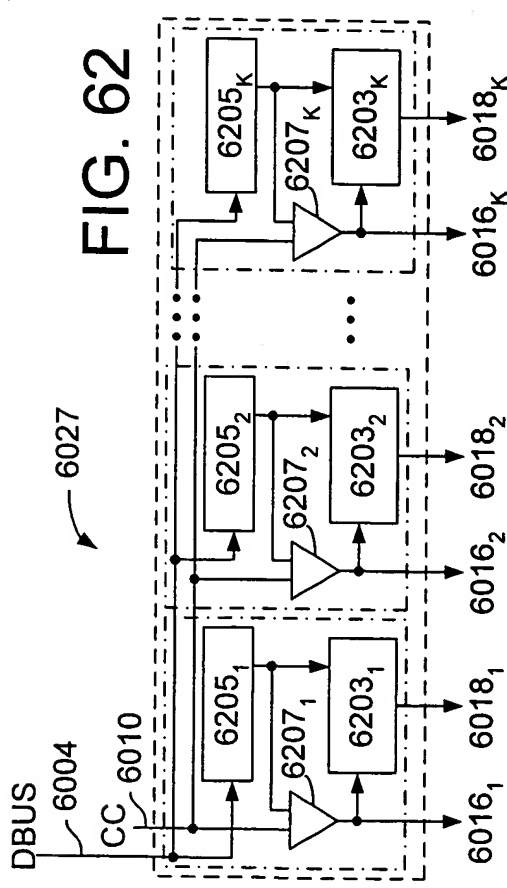


FIG. 62

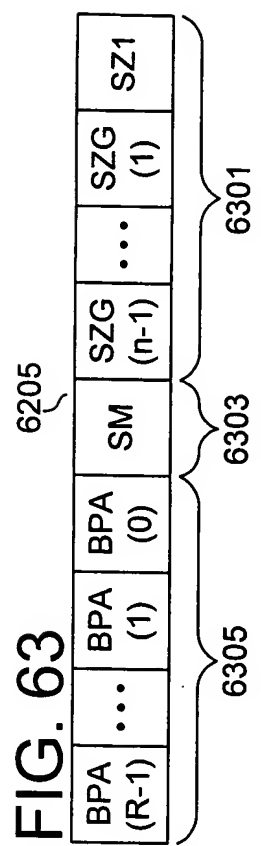
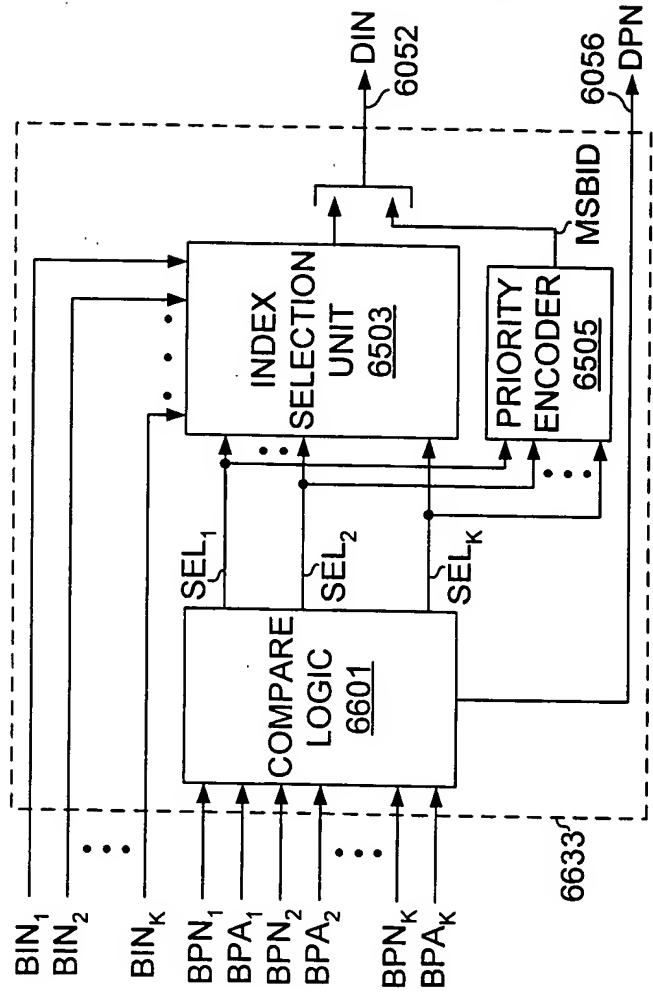
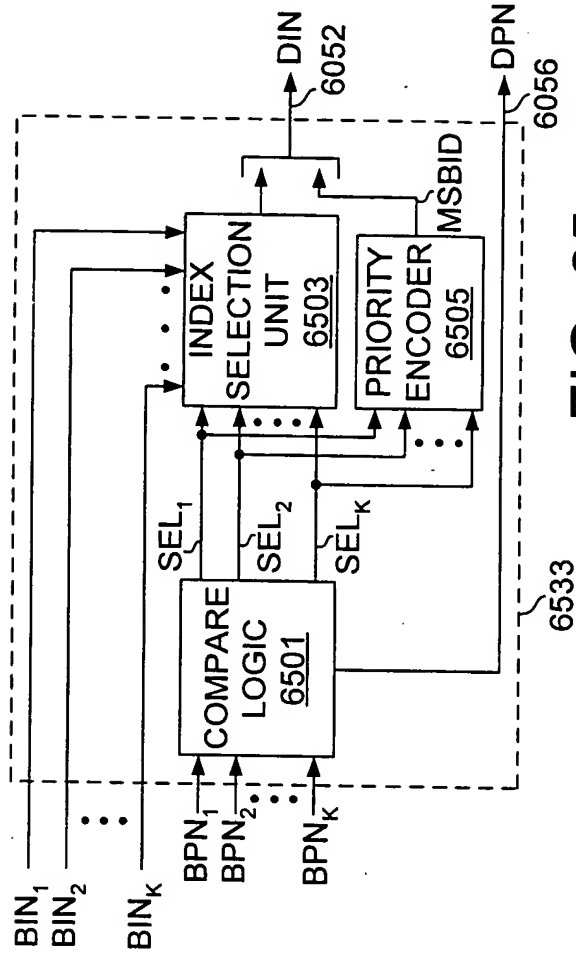
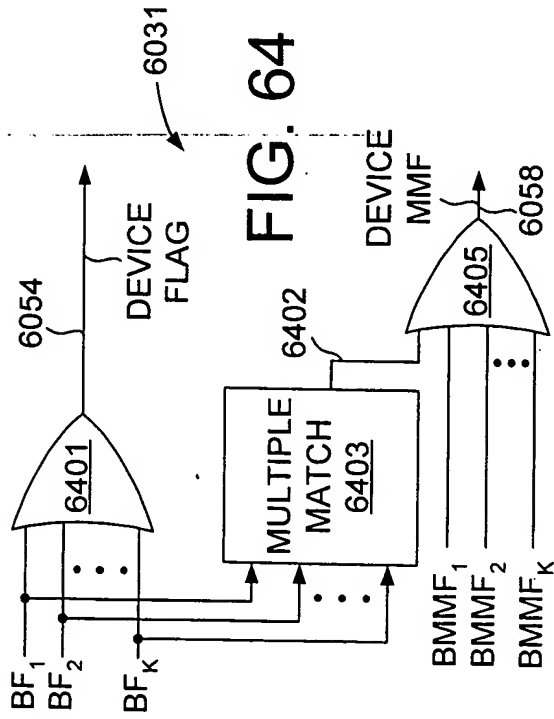


FIG. 63



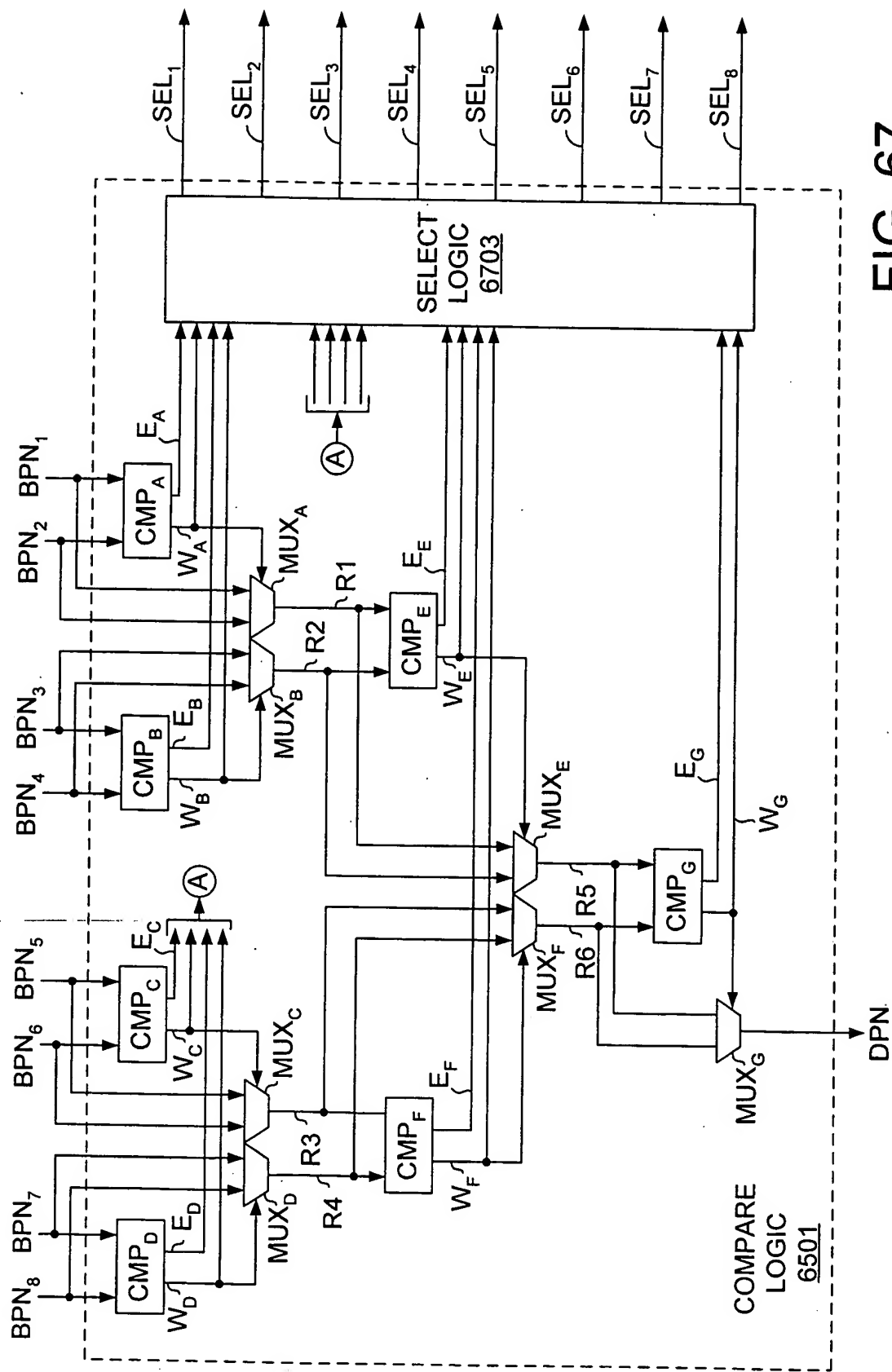


FIG. 67

FIG. 68

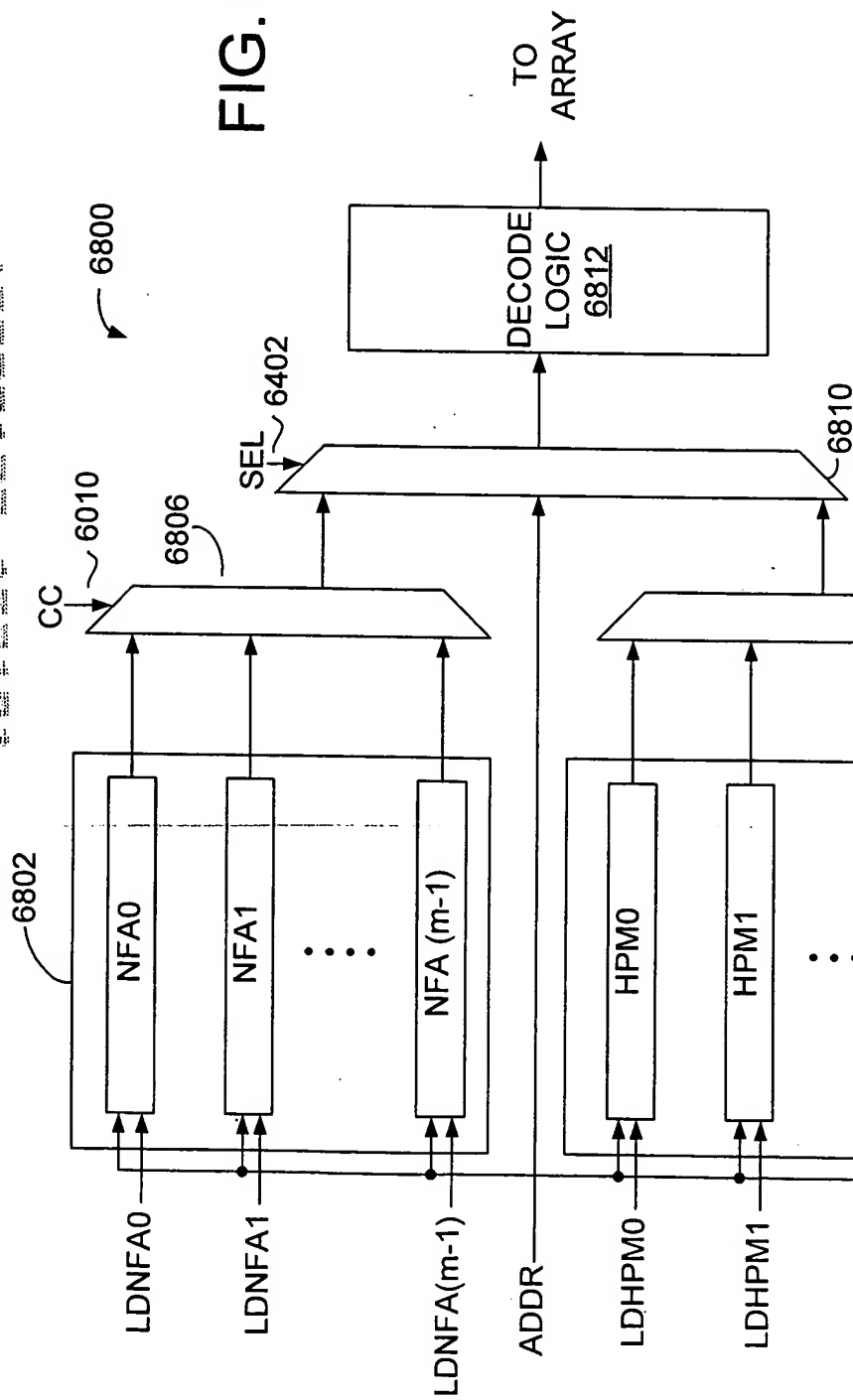
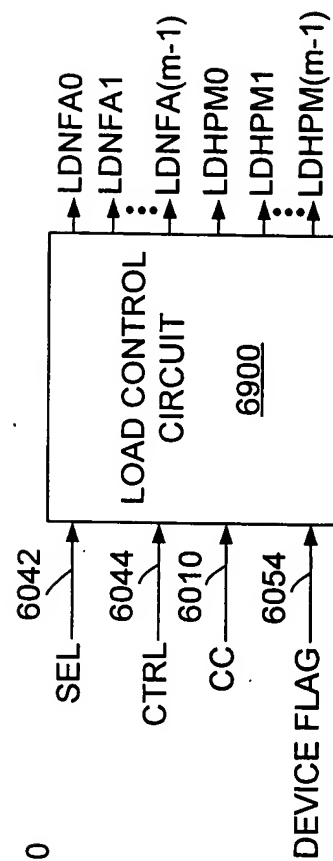


FIG. 69



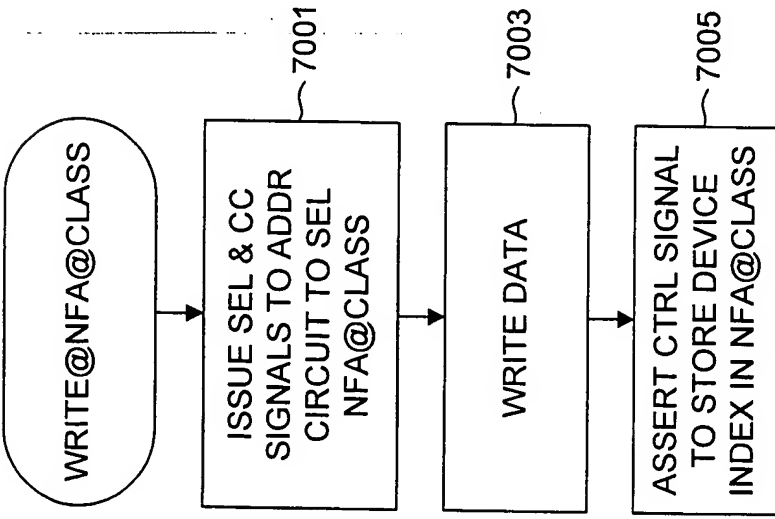


FIG. 70

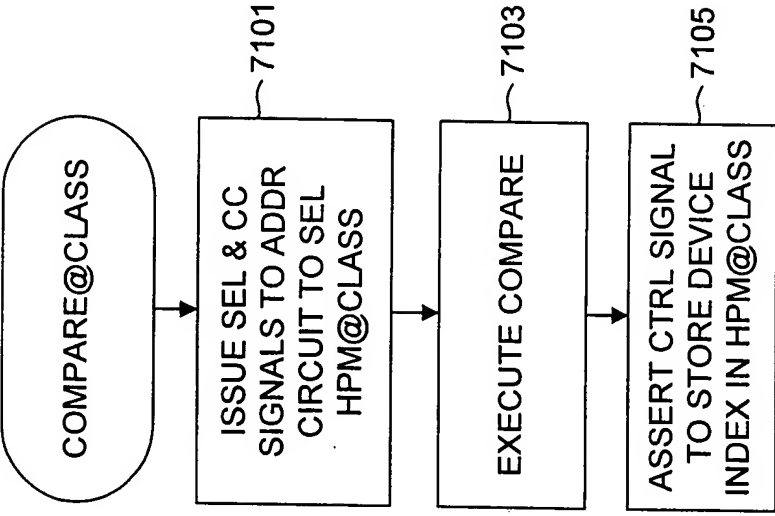


FIG. 71

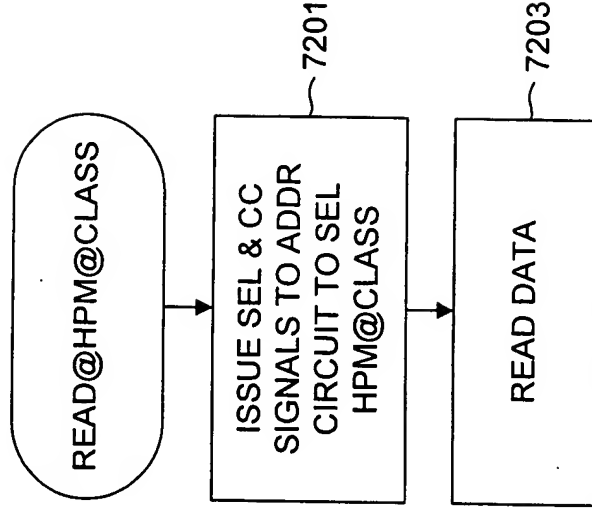


FIG. 72

FIG. 73 is a schematic diagram of a memory array structure. The array is organized into rows and columns. A word line, labeled 7605, runs horizontally across the array. A column line, labeled 6010, runs vertically. The array is divided into three main sections, each containing a set of memory cells. The first section is labeled 7301₁ and contains a set of memory cells 7301₁. The second section is labeled 7301₂ and contains a set of memory cells 7301₂. The third section is labeled 7301_k and contains a set of memory cells 7301_k. Each section is connected to a common column line 6010 and a common word line 7605. The array is also connected to a control line, labeled CC 6010, which is connected to a control circuit, labeled CC MASK. The control circuit is connected to the array via a control line, labeled 7303_k. The array is also connected to a data line, labeled 6016_k, which is connected to a data circuit, labeled CAM BLOCK K. The data circuit is connected to the array via a data line, labeled 6016₂. The array is also connected to a data line, labeled 6016₁, which is connected to a data circuit, labeled CAM BLOCK 1. The data circuit is connected to the array via a data line, labeled 6016₂.

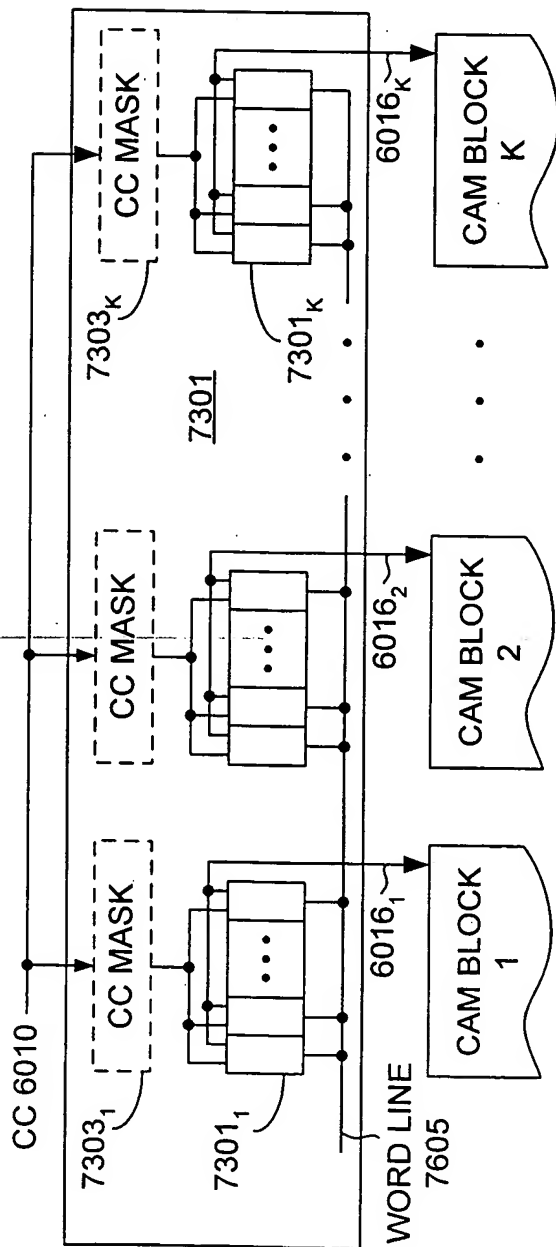


FIG. 73

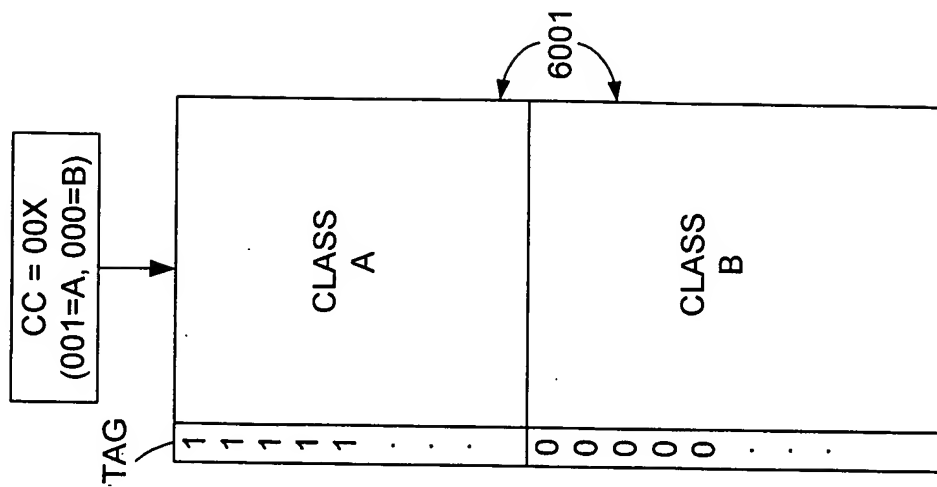


FIG. 74

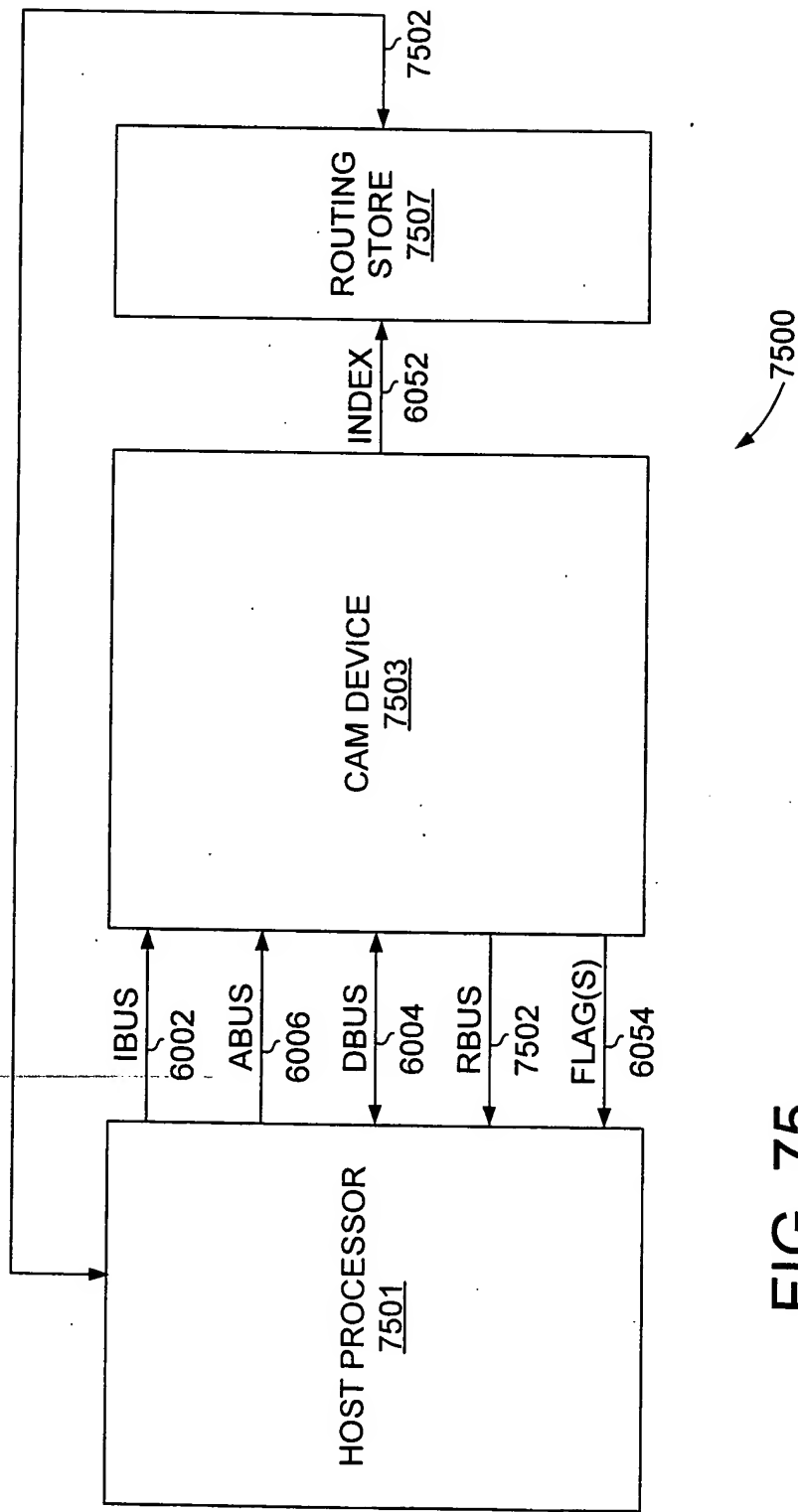


FIG. 75